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FRATERNA

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Hoya tannaensis *Green & Kloppenburg*

Photo by Ted Green

International Hoya Association

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Table Of Contents

Front Cover: Hoya tannaensis *T. Green & D. Kloppenburg*

Page	2	Declaration/Masthead
Page	3	Table Of Contents
Page	4-7	H. tannaensis Research and photos by Dale Kloppenburg
Page	8	My Experience With Hoya linearis by Eva Miles
Page	9	A Photo Gallery of Hoya linearis
Page	10	Letter From The Editor
Page	11-12	An Experiment That Succeeded by Ted Green
Page	13	Destined To Be A Favorite (An H. waymaniae with round leaves)
Page	14	Advertisement
Page	15	Advertisement
Page	16	Photo Gallery Descriptions # 1
Page	17	Photo Gallery # 1
Page	18	Photo Gallery Descriptions # 2
Page	19	Photo Gallery # 2
Page	20	Photo Gallery Descriptions # 3
Page	21	Photo Gallery # 3
Page	22	Memories From The Past
Page	23-24	Life Achievement Awards (A tribute to Dale Kloppenburg & Ted Green)
Page	25	Advertisement
Back Cover		An H. waymaniae round leaf potted plant

Hoya tannaensis T. Green & D. Kloppenburg

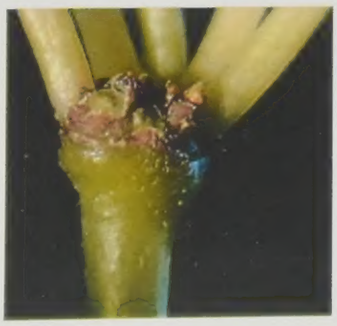
This new Hoya species was originally collected as seed by Hermon Slade. Hermon before retiring to Vanuatu was an Industrial Chemist who founded "Polymer Corporation" in Sydney Australia. He did extensive plant work in Papua New Guinea on Orchids and was Chairman of Trustees "Papua New Guinea Biological Foundation". He worked with Dr. Phyllip Cribb Taxonomist at Kew, England on the subject of Sections Ceratobium and Latouria of the Genus Dendrobium. Hermom (now deceased) was born in 1910.

Hermon Slade was a friend of Andree Millar, Geoff Dennis, York Meridith, Peter Tsang, Ted Henty, John Womersley, Oscar Kirsch and others. Hermon retired to Vila Vanuatu. On his 72nd birthday, "Bastille Day" in 1982 he and a group of orchid enthusiasts went to Tanna Island to climb the active volcano, en route he "came across a lovely hoya sp. in full flower; very free-flowering in a lovely pale but distinct vieux rose; the colour of *Beronia serrulata*, well known as a wild flower in Sydney district:" he sent me a packet of seed, knowing my intense interest in Hoyas on 24 July 1982. (Dale Kloppenburg).

These seeds were widely distributed, Ted Green felt we should name this new species, after all these years. Sort of tying up loose ends, so to speak.

Hoya tannaensis Green & Kloppenburg sp. nova Typus 2011-2 (UC) hic designatus, pollini pellucide-marginata cum similis *Hoya australis* complexus. Calycis foliola triangulara, extus granulate, glabra, quam corolla multi breviore. Corollae rotate, usque ad teritam partem basilarem 5-fida glabra, intus minute extus glabra, intus minute et tertiam partem basilarem basi versus subglabrata, lobis ovalibus acutis. Coronae foliola patentia marginem exteriorem versus leviter adscendentia, supra ovalia, medio foveolata, apice anteriore obtusiuscule acuminata, extus obtusa, lateribus rotundata.

This new species has a pellucid edge to the pollinia similar to that of the *Hoya australis* complex. See pictures and detailed measurements and observations of this species below.



Peduncle and pedicles enlarged ca. 20X. The peduncle is strict, 4.5 cm long 0.12 cm in diameter, terete a few white hair cells curved distally close to peduncle, enlarged at rachis base; rachis is bracteate with domed ciliate cells, rusty brown colored supporting the individual pedicels.

Pedicel section enlarged ca. 24X. Pedicel is 3 cm long and 0.09 cm in diameter, terete, glabrous, strict, pale dull yellow color.

Calyx and ovaries on the pedicel enlarged as above, base slightly enlarged, surface is finely granulate, sepals are short triangular outer apex sub acute. 0.17 cm long and base 0.12 cm wide, with a slight overlap.

Calyx top view enlarged ca. 10X. Ligules are present, inside surface is glabrous, slick.

Ovaries are columnar, glabrous, 0.18 cm tall and base of pair is 0.15 cm wide, apex reddish color.

Corolla outside surface center enlarged ca. 8X, surface is slick glabrous, collar not much raised, stained reddish in this area.

Outside corolla surface at the sinus area, color yellow.

Sinus – sinus	0.70 cm
Sinus – center	0.64 cm
Sinus – apex	0.95 cm
Apex – center	1.41 cm
Widest	0.85 cm

Apical area of outside corolla.

Corolla inside surface at the sinus area, the surface is finely puberulent from the edges inward 0.20 cm then becomes glabrous and finely granulate nearer the center and under the corona.

Bottom view of the corona enlarged ca. 8X. The lobes are channeled to near the central column. The sides are overlapping in some cases sides are diagonally sulcate and the apex of the lobe is emarginate and turned under slightly, Column is 0.03 cm tall, thickened a little 0.17 cm x 0.12 cm opening.

Top view of the corona enlarged ca. 10X. Inner lobes do not reach the center are tapered round to sub spatulate and raised, outer lobe dorsal edges rounded with a deep indent forward, ovate in shape, outer lobe is obtuse and also raised. Retinaculum and anther wings are plainly visible.

Apex – apex	0.32 cm
Apex – center	0.37 cm
Widest	0.22 cm
Ret – ret.	0.11 cm
Ret. – center	0.11 cm
Aw. – aw.	0.23 cm
Aw. – center	0.22 cm

In the center is the apex of the style it is gnarled, dome like, damp, glabrous. Enlarged as above.

Skewed side view of a coronal lobe, inner and outer lobes both raised, glabrous. Anthers exposed in the center (right) Anther wing is fairly deeply scythe shaped, scale is relatively thick vertically. Enlarged ca. 16X.

Pollinarium enlarged about 165X

Pollinium

length	0.57 mm
widest	0.25 mm

Retinaculum

length	0.17 mm
shoulder	0.17 mm
waist	0.10 mm
hip	0.15 mm
ext.	0.09 mm

Translator

length	0.12 mm
depth	0.03 mm

Caudicle

bulb diam.	0.06 mm

Ratio:	pol./width	2.3
	Pol./ret.	2.2

A tropical vine with slender threadlike stems, as long as 10 meters. Leaves opposite, widely spaced 5-8.5 cm long x 1.5-2 cm wide near the middle; petiole 1.5-2.0 cm long. Petiole ca. 4.5 cm long, persistent, bearing 5-10 rose and white flowers.

This new Hoya species is added to the five known from Vanuatu, formerly the New Hebrides.

Ted Green
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My Experience With Hoya linearis

About seven years ago I obtained three small cuttings, each two and a half inches long of Hoya linearis from my friend Ruth Grenier. She did not have a large plant and I remember it was not doing well, however I fell in love with this little plant and had to have it. I brought home the cuttings, and without knowing why I planted them directly into old well rotted soil that had some moss and well crushed egg shells in it.

You must understand that when someone tells me something is hard to do, I have to try doing it, such as growing a papaya tree from seed which has now grown to almost four feet high and should be setting fruit at any time now, but I digress. So back to Hoya linearis. The plant is now four feet long, even though I have cut it back twice, and has more than fifty stems. It is still in the pot I originally planted the cuttings in. I have it in a southwest glass door where it gets intense sun in summer. As you may remember, my husband and I live in the Columbia River Gorge in Washington State at about three hundred fifty feet, north of four thousand foot cliffs (one of which is Nesmith Point). Twice now, in August, I have trimmed the plant back by about a foot straight across its widrh, and wonder if this has helped it to produce so many flowers. It has however bloomed without being trimmed. The first three years it did not bloom, then it started with ten umbels of five to twelve flowers per umbel. Last year it produced about thirty umbels, each with fourteen to seventeen flowers (I counted them)! The least number of flowers on an umbel was seven. My plant starts blooming right around October fifteenth and the flowers last for one whole month! A few days after my birthday, in mid November all of the flowers are gone. Midway through its blooming cycle only one or two flowers fall off. When I see that most buds are developed I ask my husband to move H. Linearis to our den so that we can enjoy its beauty and gorgeous fragrance in the evening.

Imagine a plant with such unusual leaves, so floriferous and aromatic. Its fragrance is a lovely citrus flower scent, fresh, sharp, sweet and yet astringent. It reminds me of the hand crafted French soap we used to have in Argentina. The scent is strongest after nine P.M. And through the night. I figure God must have made a special moth and or bat to enjoy and fertilize its flowers.

Through the fall, winter and spring the area where H. Linearis is thriving is pretty cool; probably close to fifty degrees and cooler if the electricity fails. Then we heat only with a wood stove which is fifteen feet away.

Most hoyas seem to thrive on some neglect and Hoya linearis is no exception. I fertilize my whole collection only three or four times yearly with a high phosphorous content. I water the plants every ten to fourteen days, with some exceptions, and spray them when it is very hot or exceptionally dry, which is rare in this part of the country.

Perhaps next time I will tell you about my Hoya latifolia with leaves ten inches long by eight and a half inches wide. I REALLY DO NEED THAT GREENHOUSE!

By Eva Miles

Hoya linearis Photo Gallery

Top photos left & right by Alex Gavrus

Left photo by Bob Stone

Right photo by Ken or Eva Miles

Letter From The Editor

WOW! What a winter we have all been having, seems that no state in all of our fifty states has been immune to the unusual weather this year. I have heard from many of our members in Texas, Florida, Arizona, New Mexico and yes even California that have lost plants from snow, ice and/or freezing temperatures. Here in Southern Oregon it rained morning, noon and night for weeks on end. This is an odd occurance for this part of Oregon. The Oregon coast gets a lot of rain but inland we usually only get about 26 inches a year. The Portland area and on into Washington state had several horrendous snow storms. Well it's finally March and hopefully the worst is over, however the rain keeps coming down.

On another note, I have been working with a website designer on a new website for the organization. It's going slow because I'm learning as I go. It can be accessed now with the same domain name as before www.international-hoya.org however we still have a ways to go before it's finished. There will be several new catagories, such as a large photo gallery, a sponsor catagory for businesses to sponsor our organization through their business and we provide a link to their website for a small fee. To check the benefits that are availailable. log onto international-hoya.org and check the menu contents listed under the headings on the Home Page.

Through the years I have gathered many printed publications and have gotten permission from the authors to sell them through our association, either as software on dvd or as printed copies that are bound in sturdy vinyl coverings with spiral wire binding. I also have all of the 22 years+ of back issues of Fraterna on dvd.

Please check out our new web page and even though it has a ways to go before it is finished, I think you will be impressed by all of our new features.

We have already added 12 new overseas members as a result of our web page and have sold 4 complete sets of back issues in the past two weeks.

I am looking forward to 2011 and beyond as being years of renewed interest in the hoya genus.

Ann Wayman (Editor)

AN EXPERIMENT: CLONING OF HOYA SPARTIODES AND RETURNING THEM TO NATURE

Not all experiments are a success but this one is half way there.

25 years ago I started working with cloning of some of the rarer Hoyas, in an attempt to preserve them so that they are not lost. It was not easy but I had luck with maybe 10 species. After I learned how to do it, I lost interest and gave up for I didn't know who would be interested in buying them.

Then after Dorothy and I went back to Sabah in 2009, we found that this hoya, probably the rarest Hoya in Borneo, was becoming extinct – at least in the places where we found it before. So, a worthwhile project came to mind: Clone *Hoya spartiodes* in our lab and then re-introduce it into some selected sites where it was previously found.

After 2 years, we now have enough plants to plant out on the specific host trees, 10 plantlets in Sipitang, Nabawan and a new site: Kipandi (near the Butterfly Farm) and 900 meters. Each area will receive 10 plantlets and they will be wedged into cracks in the lower parts of the trunks of separate trees.

A photo of an adult plant, in a 3" (7.5cm) clay pot which grew from a 1" cutting to this size in 2 years. A 25mm test-tube showing a multistemmed clone derived from the umbel of the mother plant. 3 -2" (5cm) pots of acclimated plantlets. The one on the right – still has leaves and one peduncle; the one in the

middle half converted to peduncles; and, the one on the left, completely converted to peduncles only. All are planted only in New Zealand moss and allowed to dry out between waterings.

Adult plant shown growing on a host tree, in a crack about 2' above the ground. This is in 50% shade in Sipitang, Sabah. (That was before they disappeared from the area).

I am now planning to return to Sabah at the end of April (2011) and Tony Lamb and I will plant out 30 plantlets with the hope that they will grow into adults and repopulate 3 areas. Choosing that particular time, will take advantage of the start of the wet season.

Let's see if the experiment is a complete success!

Ted Green

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Destined To Be A Favorite

In the year 2005, I was doing a lot of trading of cuttings to acquire many that I wanted for my collection but didn't see any way I could afford them all.

In the trades that were made, I had told my correspondence to just send whatever they had available and I would sort out the ones I already had when they arrived. Five members were interested in trading and it was amazing how few I received that were already in my collection. Many being ones I had never heard of or just read about in the old journals.

The photo featured here is of a plant that I really looked forward to seeing come into flower. The label on it said Hoya waymaniae "round leaf" and that's exactly what it looked like, except that the leaves were obovate (not round) and completely glabrous instead of the felt like texture of H. waymaniae. Once the cutting was rooted it grew very fast and a few years ago I cut off close to five feet of the rampant vines to share with others. This past December it started putting out very long peduncles, the longest being fourteen inches long. Buds started forming soon and by mid January one peduncle was open with twelve perfect H. waymaniae type flowers. They are smaller and a much brighter orange than the H. waymaniae that we now know. In the next few weeks it proceeded to flower on the other three peduncles. From what I've seen of this amazing plant, is that it appears to be a better bloomer, the flowers are very long lasting, and a beautiful orange color which is rare in the Hoya genus. I am sending preserved flowers to Dale Kloppenburg for a final analysis and a new name if warrented.

I'll let everyone know through Fraterna as soon as I know.

Ann Wayman

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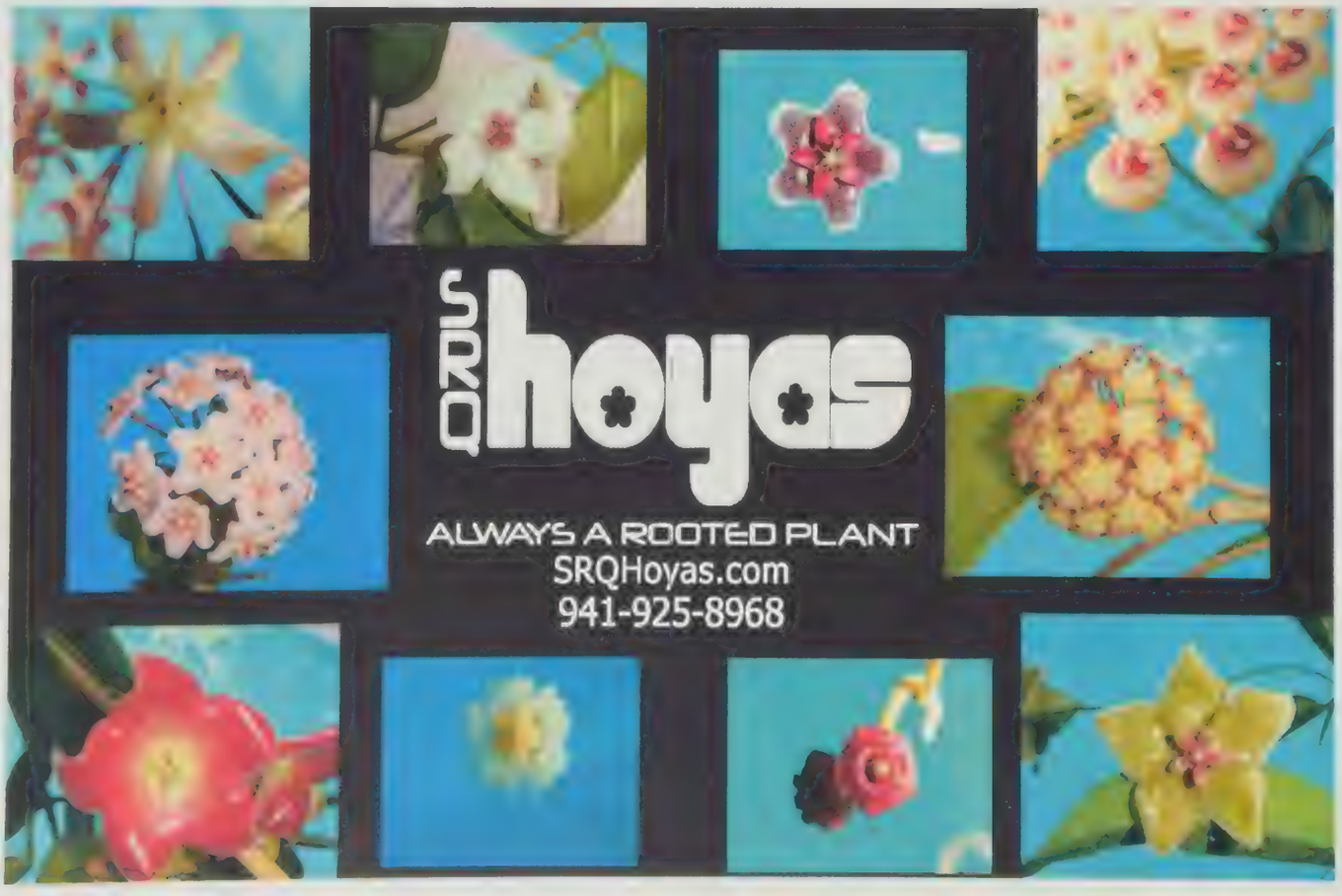

ONE OF A KIND

Nothing like this has ever been attempted before! Dale Kloppenburg's wonderful text in "The World Of Hoyas" has been kept intact, while all the old black and white photocopies of herbarium sheets have been replaced by full page, full color photos of beautifully staged foliage shots with large photo insets of flower umbels that represent the particular species.

Some of the very best photographers in our organization have participated in the publishing of this book with many beautiful photographs, all labeled and correctly identified to the best of our knowledge.

If you have ever wondered what an entire plant, or even the leaves and growth pattern looks like when you see an especially beautiful umbel of hoya flowers, now is your chance. This beautiful book has been professionally bound in perfect binding with a semi-soft vinyl cover. contains 260 pages with several blank pages at the back for notes. Available now. Just $48.00 for the book plus $3.25 book rate postage in the U.S. Postage for priority mail anywhere else in the world is at present $13.50 U.S.

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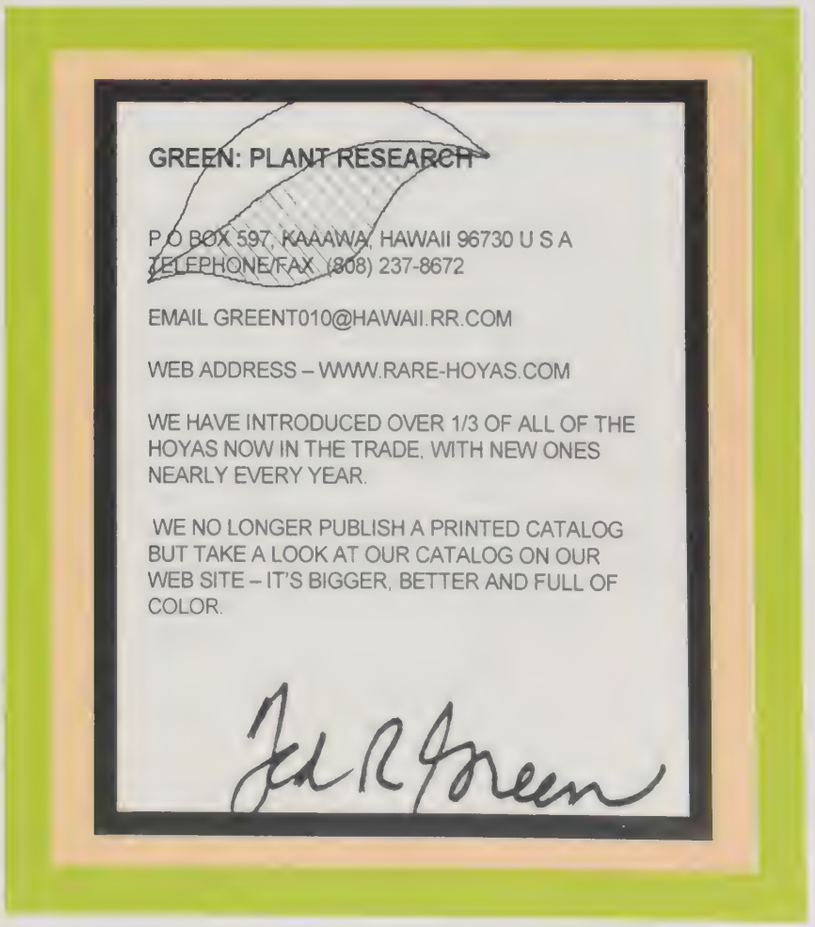
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WE NO LONGER PUBLISH A PRINTED CATALOG BUT TAKE A LOOK AT OUR CATALOG ON OUR WEB SITE – IT'S BIGGER, BETTER AND FULL OF COLOR.
Jack R Green

PHOTO GALLERY DESCRIPTIONS

Top Left

H. acuta green flower: This is one of the acute leaved plants that doesn't seem to have a name. We just call them by their description. They all have thick succulent type leaves, some with white streaks or specks, some plain green. They are all very good bloomers with a heavy honeysuckle fragrance. The pretty flowers have the sturdy wax-like texture that makes for a long lasting blooming period. This particular H. acuta has green buds which open lime green but soon turn to pure sparkling white with a bright pink center. Any of these acute leaved hoyas are great for the beginner! Photo by Ann Wayman

Center Left

Hoya pachyclada: One of the more unusual looking hoyas. This plant grows straight up and the very thick, almost round leaves grow so close together that it's hard to visualize how the flowers can form in such tight places. They usually have only a few umbels at a time but the umbels are quite large with beautiful sugar white flowers. The heavy textured corona lays rather flat across the top of the recurved petals. This is a beautiful plant but a slow grower! Photo by Ann Wayman

Bottom Left

Hoya dischorensis: Enough good things can't be said about this beautiful hoya. The foliage is large and dark emerald green. It grows fast and puts on peduncles at an early age. The many fuzzy flowers are pale greenish yellow with a pink undertone. The corona is pearly white on the outer edges with a pinkish splash at the base of each corona petal. The corona also lays on a bed of pink undertones. This is one of the best bloomers and a great choice for the beginner. I have not been able to detect any fragrance on this hoya, its only fault: Photo by Ann Wayman

Top Right

Hoya pentaphlebia: I received this plant from Michael Kartuz as a cutting back in 1994. It is a gorgeous plant with huge jade green leaves. It does require large amounts of bright light in order to bloom which bleaches out the foliage some, however the blooms are worth any amount of bleaching or care that it takes to get flowers. The flower umbels are about three and one half inches across with as many as forty flowers. The flowers are topaz yellow with the corona the same color but fading to almost white on the topside. This is another hoya that I can't detect any fragrance from: Photo by Kristina Karlsson

Center Right

Hoya cinnamomifolia: One of the largest leaved plants in the Hoya genus. This foliage is absolutely spectacular, beautiful dark green with many white splashes. The flowers are breath takingly beautiful. The color of the petals are a pale lime green with fantastic corona petals of very dark cranberry red. The only fault that I can see in this species is that the internodes are very far apart which can lead to straggly looking plants if not pruned back after a few years. Photo by Ann Wayman

Bottom Right

Hoya quinquinervia: A gorgeous hoya species from the Philippines. The foliage is big, bold, dark emerald green and heavily marked with beautiful white veining. With an abundance of light there will be many flowers per umbel with long corolla petals that roll under at the sides. The flowers open lime green with a pure white corona and an orange center. It has a strong honeysuckle fragrance with a hint of cloves or allspice. This has always been one of my favorite hoyas because it is such a dependable bloomer. Photo by Ann Wayman

PHOTO GALLERY NUMBER 1

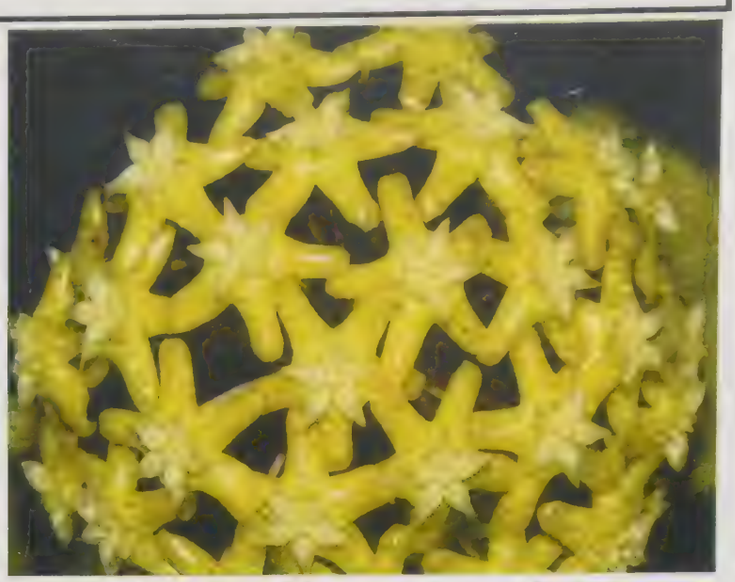

PHOTO GALLERY DESCRIPTIONS

Top Left

Hoya arnottiana: Huge umbels of beautiful creamy white flowers with pure sparkling white coronas and a yellow center. These flowers are sturdy and long lasting with the texture of hard wax. The foliage is huge with an elliptic shape and extremely dark almost blackish green. On my plant only the mid vein is visible with the naked eye but on close inspection two veins on each side of the midvein can be detected. These flowers have a very faint but sweet scent of honeysuckle. I have had this plant for 32 years and it has bloomed reliably every year through all of the summer months. Photo by Ann Wayman

Top Right

Hoya archboldiana: A pink version of a beautiful species that can be any color from pink to deep blood red to dark purple. The foliage is long, narrow and normally very dark green. They are fairly easy to grow but a real challenge to get to bloom in my greenhouse. These gorgeous cup shaped flowers are real warmth lovers and object to temperatures below about 60° fahrenheit. If they do bloom the fragrance is heavenly and I can smell them in my house which is about 200 feet from the greenhouse. I have had this particular plant since 1990 and have seen blooms about ten times. Photo by Ann Wayman

Center Left

Hoya uncinata: This is a species that we called Hoya padangensis for many years until it was finally decided that it was in fact Hoya uncinata, recognized by the sharp hook-like projections on the corona lobes. The corolla petals are long, pinkish tan and sharply rolled under on the sides. The foliage is quite handsome but rather hard to maintain because it is very thin and subject to fading from bright light and an attack by every bug that happens to come along. It doesn't seem to have any fragrance but it is unusual and very pretty. Photo by Ann Wayman

Center Right

H. walleniana: This fantastic little plant is one of the first hoyas that I ever bought. I purchased it as a cutting back in 1987 from Dale Kloppenburg when a friend and I visited his nursery. At the time the label just read Hoya species from Sabah. It grew like wildfire and bloomed several times in the first eighteen months. The foliage is beautiful and turns a gorgeous mahogany color in bright light. The flower petals are pearly white and the corona is bright red and very large. It has a nice spicey fragrance that smells vaguely like cinnamon. Photo by Ann Wayman

Bottom Left

Hoya villosa: This is one of the gorgeous leaved hoyas that most of us just dream about but never get to see, or maybe we see the plant but never see them bloom. I was lucky enough to purchase cuttings that display both of its wonderful attributes. The foliage on this species is a vision right out of dreamland with long wavy edged leaves that are dark jade green with dark blackish green edges and have the texture of soft heavy fur. It's a great bloomer and the icing on the cake...it also has a wonderful spicey fragrance with just a hint of citrus: Photo by Ann Wayman.

Bottom Right

Hoya lamingtonia: This is a wild scrambling vvine-like plant that keeps me busy unwinding the vines from nearby plants and from the rafters of the greenhouse. I'm not sure why I keep it except that the flowers are so beautiful that I can't bear to part with it. The flowers are a different color than anything else that I have, and when it's in bloom they are the first things that I see when I open the greenhouse door. They are real attention grabbers with these exquisite little magenta flowers with furzzy white edges and the deep cranberry red coronas. Photo by Ann Wayman

PHOTO GALLERY NUMBER 2

PHOTO GALLERY DESCRIPTIONS

Top Left

Hoya australis var. australis: All of the H. australis varieties have gorgeous, large, pure white flowers but this particular H. australis has beautiful dark pink splashes on the tip of each corolla petal and under the pearly white corona. These flowers are sturdy and long lasting with the texture of hard wax. The foliage of this particular variety of australis is very large, a medium shade of green and covered with short, felt-like fuzz. These flowers have a very strong, sweet scent of honeysuckle. It has been claimed that all of the H. australis varieties bloom only in the fall, however mine put on buds in very early spring and start blooming by mid July and often into the winter months: Photo by Ann Wayman

Top Right

Hoya kerrii: This is the H. kerrii that is called "hairy kerry" for its fuzz covered leaves and stems. Also known as "The Sweetheart hoya" for the heart shaped leaves. This species can get monstrous in size and completely take over a small greenhouse in one or two seasons. The flowers are beautiful but exude a thick almost black nectar that can stain anything that it drips onto, including it's own or other plant leaves, furniture or clothing. I love this hoya but it is better grown in a large greenhouse where it can have a corner all to itself, or outdoors in areas that don't have temperatures that fall below 55° Fahrenheit. I have never detected any fragrance from this plant: Photo by Ann Wayman

Center Left

Hoya obovata: This beautiful species just might be the most reliable grower and bloomer in the hoya family. The very thick leaves are close to four inches across, medium emerald green and splashed with white, gray and sometimes pink. This species can have hundreds of peduncles that remain on the plant in good condition and continue blooming from these same peduncles year after year. The flowers are quite large and usually pale pink with very dark cranberry red coronas. The fragrance is sweet but pleasent and not overpowering: Photo by Ann Wayman

Center Right

Hoya pubera: This plant is a great little miniature species. It is small but sturdy, dainty but elegant. The flowers are small but not so small that their beauty can't be seen with the naked eye. The foliage is a beautiful shineygreen that can turn a gorgeous russet brown color in bright light. I purchased this species as a cutting from Ted Green back in 1990. I had never tried any of the very tiny miniatures before and feared that it would die before it rooted; it didn't! It has become an old and dear friend and always greets me with flowers in the summer: Photo by Ann Wayman

Bottom Left

Hoya parvifolia: This is a small plant with very fuzzy foliage. Not just the leaves but the entire plant is covered in short dense fur. It is a great bloomer and one of the few hoya plants that produce seed pods every year by the dozens. The small but exquisitely beautiful flowers can be yellow, greenish or sometimes even tan. This plant blooms constantly from early spring to late fall and is usually covered with seed pods: Photo by Ann Wayman

Bottom Right

Hoya kanyakumariana: I'm not sure how this plant got this name but I believe it was named in honor of someone, probably the collector, it's truly a tongue twister. It's a gorgeous small plant with medium green, interesting shaped leaves, some being almost round and others rather elongated but all with waved and crinkled edges. The flowers are very much like very small Hoya carnosa's: Photo by Ann Wayman

PHOTO GALLERY NUMBER 3

MEMORIES FROM THE PAST

Here we are in the eleventh year of a new century. Who would have dreamed back in 1988 when The Hoya Society West Coast came into being that we would still be around twenty three years later! We started with a few members (seven) that met on a quarterly basis here in the state of Oregon. We met at either my home here in Central Point, or at one of the Eugene, Oregon members homes. I also remember that we also met one time at Grants Pass, Oregon.

Through word of mouth or some flyers that were sent out we soon had close to 200 members, most of them in the Southern California area. We were starting to get members from overseas and with Dale Kloppenburgs approval and his agreement to become our first president, we decided to form an International Organization. Fortunately, my husband is an accountant and tax consultant and took care of all the paper work for that project. In 1991, we added "doing business as "The International Hoya Association" to our original name and so became a corporation. In 1994 Ted Green agreed to be on our board of directors and so along with Dale Kloppenburg, became a significant and knowledgeable member of our organization

Happily, most of our original members are still with us but we have lost a few dear friends along the way from death and perhaps many more have just lost interest. The good news, is that we have gained the attention of many plant lovers who are now discovering the wonderful qualities of hoyas as great house plants that are easy to grow and bloom in the house or outside in the more tropical zones.

All of these memories came back to me the other day while I was copying some DVD's to send to new members who had ordered the old back issues of Fraterna. I ran across this article saluting two of our most valuable members, Dale Kloppenburg and Ted Green who will both be ninety years old this year and still going strong. I talk to Dale on the phone at least once a month and also to Ted when he's not running off to other countries on his newest collecting trips.

I hope you will all enjoy this republished article on the "Life Achievements" of these two men who have been such a large part of our organization and the wonderful world of hoyas.

By Ann Wayman

Life Achievement Awards Given

By Chuck Everson

Dale Kloppenburg (L) Ted Green (R)

It has come to pass that it is time to honor some very valuable members of the I.H.A. As far as the Board of Directors of the I.H.A are concerned, it is way overdue. I am talking about Dale Kloppenburg and Ted Green. These two gentlemen have contributed more of their time and knowledge to the world of hoyas than just about anyone in the world.

The Board of Directors of the International Hoya Association have decided to honor these two gentlemen by unanimously awarding them the I.H.A. Life Achievement Award. To give you some history about these two remarkable men, I conducted separate interviews with both and it is amazing how their lives have paralleled, their interest in botany so much alike, and how their friendship has endured.

Dale and Ted were both born in 1921, and raised in Fresno, California, where they met in the 6th grade, at the age of 12, and playing together in the summers. After graduating from High School, Dale went on to get his BS degree in Plant Genetics at Fresno State, then on to U.C. Berkeley—while Ted went to Fresno State, Northwestern University and then on to the University of Hawaii, where he obtained his BA degree in Biology.

Both served in the U.S. Navy during World War II. Both had pilot's licenses. Both entered as enlisted men in 1941/1942, winding up being officers. When the war was over, Dale went to work as a

Rose breeder at Armstrong Nurseries. Ted went to work for the U.S. Department of Agriculture. They met again while both were doing fig research at the California Institute of Fig Research.

It wasn't until 1981 that their mutual interest in hoyas resulted in a desire for joint collaboration, doing field work together for the next 16 years-- with trips to Borneo, the Celebes Islands, the Fiji Islands, and the Philippine Islands. In addition to joint field work, both Ted and Dale have taken separate trips to the above places and also to places like Australia, Indonesia, Suluwesi, Borneo, Samoa, Guam, Yap, Solomon Islands and countless other areas in the pacific—finding new hoyas, collecting and re-collecting hoyas thought to be extinct long ago. Ted has gone on his own to other countries to field botanize and learn more about hoyas: Thailand, Tahiti, New Caledonia, New Hebrides, Indonesia, Western Samoa, New Guinea, and Guadalcanal –just to name a few. (Total trips: 23 in the last 20 years).

It was during this period that this knowledge of hoyas and their habitat, acquired by both individuals started to evolve, culminating with their interest to relay this information through the International Hoya Association (formed in 1988). Dale is a charter member, while Ted got on board a few years later.

Together, Dale and Ted have named and/or described over two dozen hoyas during this period. And their plans do not call for either one of them slowing down. They are planning future trips together—possibly to the upper peninsula of Malaysia, and the east coast of Sumatra.

Ted is still operating his nursery (Green: Plant Research), however Dale decided in 1998 to close his nursery and take a more active role in becoming the editor of Fraterna, and with the remaining free time, writing books on hoyas.

Looking over the lifetime of these two remarkable plantsmen, and with the kind of effort that both men have put forth in the promotion of hoyas, and the promotion of the I.H.A., we now bestow upon them the honor of the prestigious LIFE achievement award.

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AND

THEODORE ROOSEVELT GREEN.

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Hoya waymaniae type with obovate leaf

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Official Bulletin Of The

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Hoya benitotanii *Kloppenburg*

Photo by Ted Green

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Errors of fact may occur from time to time in "Fraterna", it is the policy of the IHA to publish corrections of fact, but will not comment on matters of opinion expressed in other publications.

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Table Of Contents

Front Cover: Hoya benitotanii *Kloppenburg*

Page	2	Declaration/Masthead
Page	3	Table Of Contents
Page	4	Corrections Made To The Hoya Genus
Page	5	Arcadia Glasshouse Ad
Page	6	Our Cover Story
Page	7-8	More About Leaves
Page	9	A Few Of My Favorite Things # 1
Page	10	A Few Of My Favorite Things # 2
Page	11	A Few Of My Favorite Things # 3
Page	12	A Few Of My Favorite Things # 4
Page	13	A Few Of My Favorite Things # 5
Page	14	Advertisement
Back Cover		Benitotanii Kloppenburg

Corrections that need to be made in order to legalize some of our hoyas.

Corrections: by Dale Kloppenburg

changing species to the Genus Eriostemma Fraterna 14 (2) 2001 the following corrections should be noted.

Species added: Eriostemma grandiflora (Blume ex Decaisne) Kloppenburg & Gilding. In DC. Prodromus 8(1844)635.

Corrected: Eriostemma guppyi (Oliver) Kloppenburg & Gilding. Type Guppy188. In Icones Plantarum 23(1892) Plate 2247.

Corrected: Eriostemma lauterbachii (K Schumann) Kloppenburg & Gilding, Type 930(B). In Monatsschrift fur Kakteenkunde1(1896)7-8.

Eriostemma pulgarensis (Elmer) Kloppenburg & Gilding. Type Elmer 12985. In Leaflets of Philippine Botany 10(1938-39)3588-3590. Nomen invalid as published in English when only Latin was acceptable. See Elmer's English description of this species in Leaflets of Philippine Botany 10.

Eriostemma pulgarensis Kloppenburg & Gilding sp. nova Type Elmer 12985 hic designatus, foliis aveniis, ellipticus, basi rotundata, apice sub ovatisus sed brevis apiculatis, margine integra, superne glabra, subtus tomentosuli etinvolutis. Folio5 cm x 9 cm vel parvior, deciduus, petiole superne sulcate, brevisime tomentosulis 1-1.5 cm longus; calycis late ovatus 0.40 cm longus, extus pubescentibus, apice late obtusis; corollae lobus 0.75 cm. ;ongis, ovatis, extus glabratus, intus puberulous; coronae foliola superne ellipticus; folia similes Eriostemma ciliata (Elmer ex Burton) Kloppenburg & Gilding sed flores sic usa distinctus.

Species added: Eriostemma zollingeriana (Miquel) Kloppenburg & Gilding. In Flora India Bataviae 2(1856)518.

Incorrect species spelling in original publications are automatically corrected to conform to modern botanical usage ICBN 60.5. Below are a list of my species properly presented:

Hoya cembrae Kloppenburg 1990

Hoya golamcoana Kloppenburg 1991

Hoya juannguoana Kloppenburg 2002

Hoya stoneana Kloppenburg 2006

In addition: Hoya ilagianum Kloppenburg, Siar & Cajano 2011 is changed due to the dedication in the type description to the Ilag family (male and female).

In the description of Hoya carmelae Kloppenburg, Siar & Ferreras in Fraterna 23#4(2010):9-13 we made a mistake in the leaf measurements at the end of the description. They should read Leaf length 1.4 cm and leaf width 0.9 cm – 1.0 cm. This mistake was discovered by Torill Nyhuus.

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Our Cover Story

H. benitotanii *Kloppenburg*

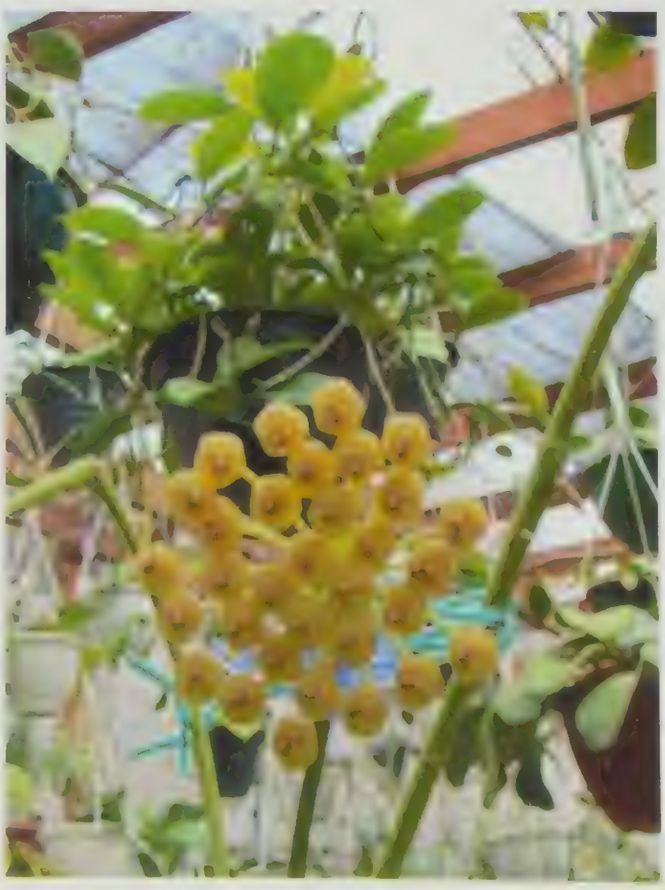
I first ordered this hoya from Ted Green as H. gigantangenensis as a cutting. It has beautiful solid textured, glossy green leaves and sturdy, rather wild stems that can grow completely out of bounds in a very short time if they are not wrapped around themselves while they are young and pliable, or allowed to grow on a trellis or large plant ring. I prefer wrapping them around themselves as it is easier to unwind and later rearrange them as they grow larger. A few years later I received the same plant as H. bicknellii from a collector in Europe, and though I was fairly sure it was the same species, I had to wait for another three years to see both of them bloom to be sure. I believe there is an H. bicknellii out there somewhere that is different. According to Dale Kloppenburg who described, named and published both of these species, the difference is very slight. It is the species that originally circulated as H. gigantangenensis that has been named and published as H. benitotanii *Kloppenburg*.

This is a hoya in the Acanthostemma section which is in itself a big surprise, as every other Acanthostemma that we have in our collections are either small growers or very small growers. This species can get huge with thick leaves that can be up to 4 inches wide by 5 inches long. The stems can grow to 20 feet or more.

I really do love this plant, it has everything that we tend to classify as important to us in order to be a valuable asset to our collections. It is a beautiful plant with a multitude of very bright, extremely long lasting lemon yellow flowers that can remain on the plant for a month or more in perfect condition. It has a light citrus fragrance that can be detected during the day as well as at night.

I do have one other very large hoya species that has been classed as an Acanthostemma. Since I haven't seen any blooms on it as yet, I can't make any kind of assumption. It may be one of those few that I never get to see in bloom.

by Ann Wayman



Hoya Leaf & Stem Structure

Hoya leaves are highly variable in size, shape, thickness, texture and venation. They may be glabrous or hairy. The leaf is made up of a petiole and a blade (see labeling on previous page). When hairs are present, the leaf blade may have hairs on both surfaces or on only one surface. These hairs are simple or uniseriate. They are thin walled, very fine, and usually white and vary in length and dispersion. The leaf texture varies from thin, as an example *Hoya vitiensis* , to very thick and succulent, as an example *Hoya australis ssp. rupicola*, depending on the species and also its habitat. There is usually one or a group of nectariferous glands at the junction of the petiole with the leaf blade.

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Leaves of hoya may have various distinctive markings on the upper leaf surface. This can be spotting, streaks and blotching. This arises from irregular concentrations of chromoplasts (colored cell inclusions) in cells immediately below the upper leaf surface.

Veins give a very characteristic appearance to the leaves and are of two primary types: pinnate and palmate. In pinnate venation the veins branch off the midrib laterally along nearly the entire length. These veins may be at acute angles to the midrib or in some species perpendicular to the midrib. Most of these veins form loops along and near the margins. Extensive looping connections is termed anastomosing venation. Veins of this type can also be so extensive as to be netted. Veins that arise near the base of the blade in three, five or even seven (including the midrib) primary veins are termed palmate. There are variations as to the positioning of these paired veins off the midrib base, giving rise to many distinct types. The venation of hoya leaves is complex and would make an interesting presentation.

Petioles (the leaf stem) arise from the stem nodes at various angles and are usually slightly twisted. As mentioned above, they may be circular but many are grooved on the surface toward the blade. Mostly, the petioles are held at about a right angle to the stem. The blade normally then turns another 90°. This creates an anchoring structure, so the vine can entrap itself in surrounding vegetation, thus is an aid in climbing to reach more favorable conditions.

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blade. Mostly, the petioles are held at about a right angle to the stem. The blade normally then turns another 90°. This creates an anchoring structure, so the vine can entrap itself in surrounding vegetation, thus is an aid in climbing to reach more favorable conditions.

Leaves may vary in size among species from smaller than a dime to more than 12" long and 8" wide. Even the leaves of one species are variable. Leaves of wild plants are usually thicker and smaller then the same plants grown in cultivation under more ideal conditions. Leaves of a cutting from the wild may look nothing like the foliage that develops in a greenhouse. They not only will show a different size or thickness but even the shape may be drastically different.

Stems

Hoya stems, mostly round, are at first succulent and green, some tinged with purplish bronze colors and contain chlorophyll. As the stems age, they become more woody or corky, brown-buff colored and can be greatly enlarged, especially near their basal area. They can be thumb size or even larger.

The Hoya Flowers

The flower stalk, or peduncle as it's called, arises between the leaf petioles at the nodes. There are dormant buds on either side of the stem, and they are thus "interpetiolate". In most cases they are perennial. Numerous successive flushes of flowers arise from the apical area of the peduncle. These can be produced over a number of years. This area at the apex of the peduncle is thickened and scarred with small bracts, which are at the base of each individual flower petiole (the actual flower stems). Many petioles are inserted in a tight spiral arrangement on the rachis. The umbel shaped flower clusters have been classified into the following types.

(1) Globular...All the pedicels are the same length giving a ball shaped flower cluster.

(2) Flat or concave...Pedicels of varying length, shortest on the interior, longer as they progress outward. The pedicels form rigid curves. Positively geotropic. They hang downward.

(3) Negative geotropic. Apex of the peduncle pointed in a horizontal position. This gives rise to a rigid uniform pedicel with a convex or globose umbel held in a horizontal position. It could be added that umbels may be made up loosely or may be compact in form.

By Dale Kloppenburg : From portions of the text of "The World Of Hoyas" A Book Of Pictures

H. benguetensis *Schlechter*

Of all of the hoyas that I own, this may be my most favorite of all. It was one of the first of the more exotic hoyas that I collected when I first knew that there was more to hoyas than just H. carnosa and "the pink silver vine". This hoya was collected in The Philippines and has the beautiful, heavily veined, dark green foliage that is so outstanding in many of the hoyas that were discovered in this area of the world. The leaves are long, rather wide in the middle and elliptic in shape. The color of these flowers is outstanding in that the corolla is reddish but fades to an almost blush pink at the outer ends. The very waxy textured corona sits atop of the petals like a sparkling garnet gemstone. The final feature is the glistening, amber yellow center with the dark brown retinaculum (pollen sacs) visible.

This is not one of the easier hoyas to bloom, at least not for me. It demands careful attention to the watering schedule and the amount of light that it receives. I use my 3-2-1 potting medium (3 parts Peat moss, 2 parts perlite, 1 part vermiculite). Add some Dolomite lime or add oyster shells to neutralize the acid in the peat moss. After 5 weeks or so after potting up, start fertilizing at least once a week with a very mild solution (about half strength) of a balanced fertilizer. When it does bloom, usually from about September through December, it's worth all the time and effort that goes into the care and culture of this species.

Article & Photo by Ann Wayman

Hoya arnottiana

A beautiful ivory flowered hoya with pure white corona. The leaves are large, dark green and quite succulent. This species is one of the easier hoyas to bloom in semi shady areas. It doesn't seem to require the bright light that so many of the dark colored flowers need in order to bloom. I like this hoya because the flowers are so very long lasting, and new umbels continue to open all during the summer and fall months. This feature almost guarantees a continuation of flowers for the most part of the year. The fragrance is rather heavy, much like lilac but only in the confines of a greenhouse. Outdoors the fragrance is light and delicate.

I purchased this plant as a cutting in 1990 and it has been mother to hundreds of cuttings and rooted plants that are still growing and blooming in homes, greenhouses and outdoor areas all across the U.S.

by Ann Wayman

Unknown Philippine Species

Like so many of the spectacular species that are being discovered in the Philippines, the leaves of this species are beautifully veined, the colors of the flowers are bright and heavy textured. I purchased this species as a cutting with the label of H. palawanica. Dale Kloppenburg says this is not H. palawanica, neither are any of the other unidentified hoyas in our possession at this time. Surely it will be given a name of its own soon. I love this plant, it adapts so beautifully to hanging basket culture and its habit of gracefully dangling foliage makes it a highlight of my greenhouse, in or out of bloom. Unlike many of the rather dull flower colors of some of the Philippine hoyas, these flowers, especially the petals are vividly colored. The coronas are a most unusual dark rose red and appear to be carved from heavy wax. It normally blooms from early March, then off and on to well past September. Its only fault, is absolutely no scent that I can detect.

Article & Photo by Ann Wayman

Hoya vanuatuensis *T. Green*

Yellow flowers? Yes, I love them, and in fact close to half of all the hoyas that I have are yellow or variations of yellow, from pale yellowish cream to the brightest canary yellow you can imagine. All are what I consider happy colors and walking into my greenhouse with many yellow flowers in bloom is always considered the brightest part of any day. An added bonus is that many yellow flowered species have a citrusy fragrance and none that I can think of have the honeysuckle fragrance of most of the white flowered hoyas.

This hoya was once considered to be a variation of Hoya diptera from Vanuetu but was finally determined to be a seperate species and was published and given the name H. vanuetuensis by Ted Green.

Article by Ann Wayman, photo by Eva-Karin Wiberg

Hoya ilagiarum *Kloppenburg & Siar*

WOW!! This is a gorgeous hoya! It would be impossible to decide which of these Philippine hoyas would win the race for which is the most striking. This particular species is fairly new to the hoya world, in fact new species are being discovered on an almost monthly basis in the Philippine Islands. Some are quite close to species we already have and so are considered sub-species or varieties, others are diverse enough to be new stand alone species with totally different characteristics than others that we have in our collections. It takes a great deal of time and study to sort all of these diverse characteristics in order to validate them as a totally new species. This particular species in discussion is quite close to the H. bordenii species but with different reproductive organs and of course flower color. If I were going to choose a hoya strictly on the flower colors, my choice would be either this one or Hoya bicolor with its bright yellow flower petals and the dark brown petal tips.

Article by Ann Wayman, photographer unknown

ONE OF A KIND

Nothing like this has ever been attempted before! Dale Kloppenburg's wonderful text in "The World Of Hoyas" has been kept intact, while all the old black and white photocopies of herbarium sheets have been replaced by full page, full color photos of beautifully staged foliage shots with large photo insets of flower umbels that represent the particular species.

Some of the very best photographers in our organization have participated in the publishing of this book with many beautiful photographs, all labeled and correctly identified to the best of our knowledge.

If you have ever wondered what an entire plant, or even the leaves and growth pattern looks like when you see an especially beautiful umbel of hoya flowers, now is your chance. This beautiful book has been professionally bound in perfect binding with a semi-soft vinyl cover. contains 260 pages with several blank pages at the back for notes. Available now. Just $48.00 for the book plus $3.25 book rate postage in the U.S. Postage for priority mail anywhere else in the world is at present $13.50 U.S.

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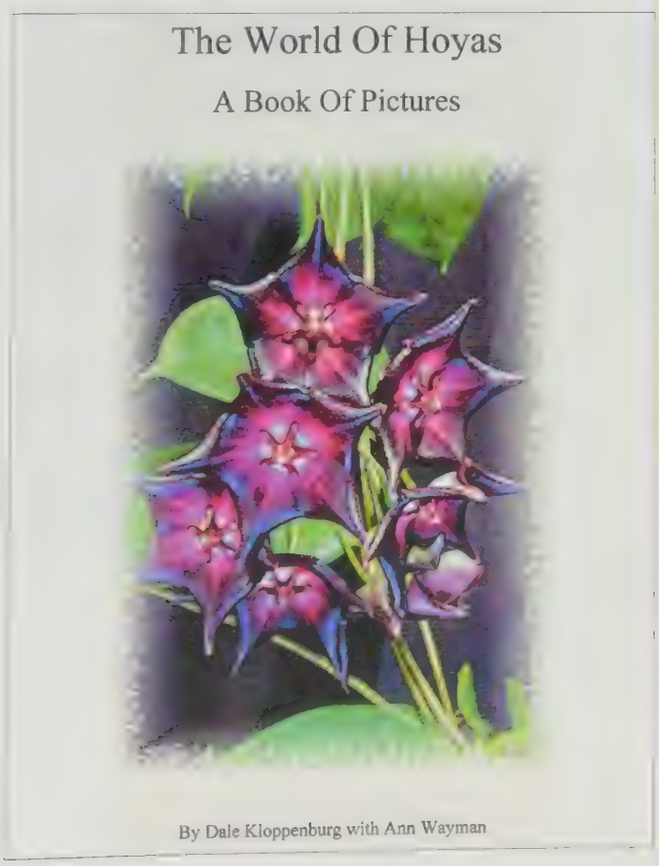

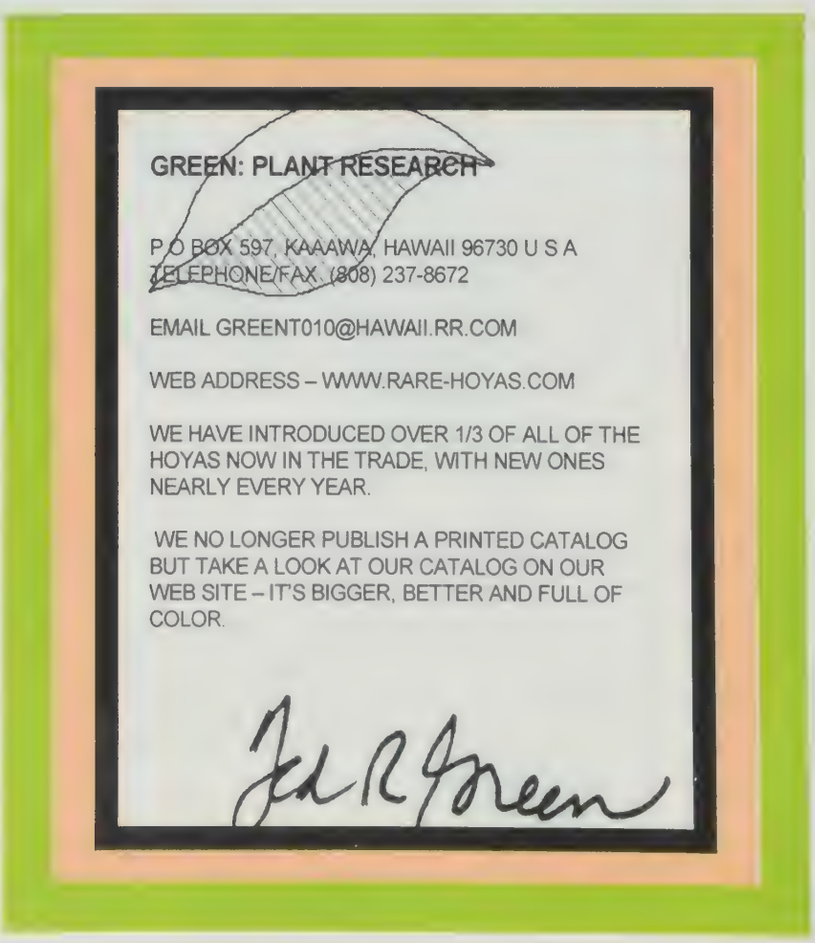
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H. benitotanii *Kloppenburg*

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Hoya retusa Dalzell

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Errors of fact may occur from time to time in "Fraterna", it is the policy of the IHA to publish corrections of fact, but will not comment on matters of opinion expressed in other publications.

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Table Of Contents

Front Cover: Hoya retusa *Dalzell*

Page	2	Declaration/Masthead
Page	3	Table Of Contents
Page	4	Our cover Story
Page	5-8	Will The Real Hoya Paziae Please Stand Up?
Page	9-11	Fertilizer and Fertility
Page	12	Photo Gallery Descriptions # 1
Page	13	Photo Gallery # 1
Page	14	Photo Gallery Descriptions # 2
Page	15	Photo Gallery # 2
Page	16	Advertisement
Page	17	Advertisement
Back Cover		Hoya retusa Hanging Basket

Our Cover Story

Retusa *Dalzell*

This cute small leaved hoya is just about as far from the typical hoya foliage as we can imagine. The leaves are 2 to 3 inches long, rather thin and appear to be chopped off square at the tip ends.

It's a wild growing plant that can soon grow from 4 to 6 feet long, and several feet wide since the new plants grow from both the roots and sprout many branches. As a rule it only has one flower per node but I have often seen plants with two flowers per node, the exception, not the general rule. This plant needs a great deal of very bright light in order to bloom, however direct sunshine is an absolute no no and can burn the thin leaves in a very short time. This species comes from India and will thrive in the same conditions that H. linearis enjoys.

I received this plant in a trade back in 1998 as a cutting. At the time I never imagined that it would become one of the leading favorites in my greenhouse and in time would have the starring role as the logo flower on our masthead.

I really believe the translation of the original Latin says it better.

Translated from the Latin

Parasitic (no Hoya is parasitic), pendulous, rooting, glabrous, branches long terete filiform, leaves shortly petioled. linear, three angled, apexes retuse, fleshy, pale, flowers solitary on a very short axillary peduncle or in paits, on long pedicels, pedicels filiform. Calyx lobes minute, acute. Corolla white shiny, lobes ovate obtuse, with margins very shortly velvety fimbricate. Corona scales depressed, obovate, red.

Leaves 11/2 to 2 inches long, 2 to 2 ½ lines wide, surface above channeled. Pedicels 9 lines long. Corolla 9 lines in diameter. Branching at some leaf axils. Some internodes very short (others) long with leaves appearing fasicled. Species singular. It lives in Canara Province, and in trees at the place called "Dandilly" it flowers at the time of the rains.

H. retusa (flowers at every node)

H. retusa (photocopy of herbarium sheet)

WILL THE REAL HOYA PAZIAE PLEASE STAND UP?

Guessing is terrible – as when I am asked to recall something that I did 40 years ago. Like when going to the top of Mt. Makiling in the Philippines and collecting a Hoya that I was sure was H. paziae (*eugeniodes).* Well, maybe it was *Hoya odorata* that I collected,for it grows up there – not *H paziae (eugeniodes).* Now I don't know for that was a long time ago.

Actually, I have never collected in the wild, not just in the Philippines or anywhere else, the thing that I now grow and list as H. paziae. I don't know where I got my original plant, probably from Dale, who says that he got the plant years ago from David Liddle as *H. schneei* (IML 518). Dale challenged the label so David changed it to an undetermined species. David's 1991 list shows IML 518 to be *H. schneei* and then the 2008 list shows IML 0518 to be *H. leucorhoda.* The 0 is an addition to the whole IML list.

Liddle's catalog shows a hybrid **Hoya Iris Marie**, as a hybrid between H. odorata and H. schneei is named after Iris Marie, (David's wife) and is said to have spontaneously appeared at the Liddle Nursery in Mareeba, Queensland. This is the same plant that we have always called *H paziae.*

Hoya schneei x4

Hoya odorata x3

H x Iris Marie x2

Or, *H. odorata* x *H. leucorhoda*?

Hoya odorata

Hoya leucorhoda

To make a hybrid between *H. schneei* and *H. cembra* (as some say *cembra* is synonymous with *odorata*) would be very hard to do for *H. cembra* (H. *leucantha*) has not been re-collected and is not in the trade. Dale named *cembra* from Schlechter's *leucantha*, not *odorata.* So, H. sp Paz is anybody's guess but if it is a hybrid it is probably a cross between *H.*

odorata and *H. leucorhoda* We have no idea who decided to call this particular plant *H. paziae* and we all goofed in perpetuating the name as *H. paziae*. We didn't do our homework!

Without a DNA analysis or selfing and growing out the seedlings (to see segregation), we will not know if it is a valid species or, as some say, a hybrid between *H. schneei* and *H. odorata*.

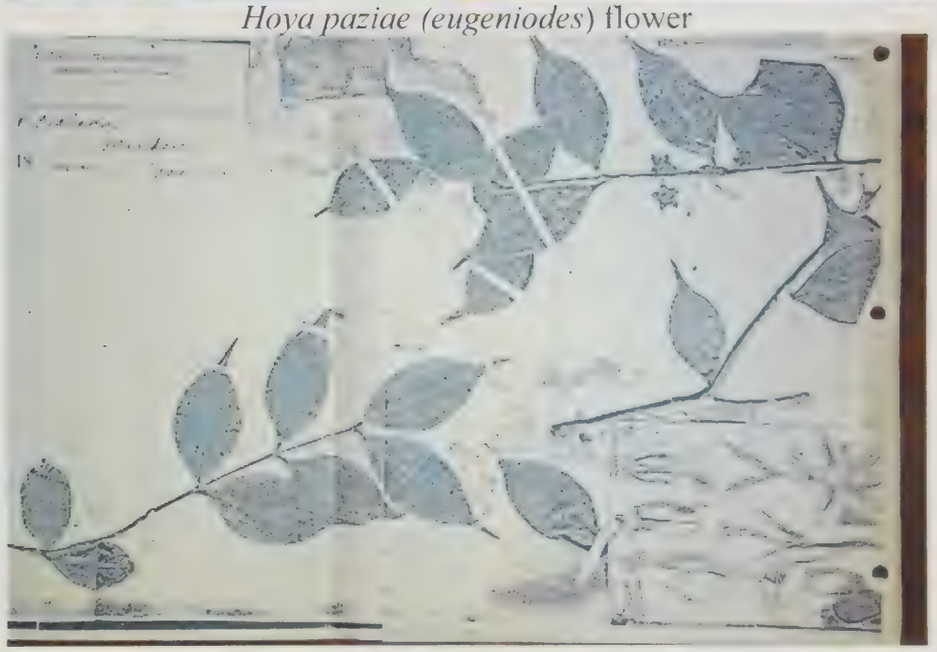
THE REAL PAZIAE:

Dale Kloppenburg named *H. paziae* in 1990, from Schechter's unpublished *H. eugeniodes* and yet, since the original collection, no one had collected and recognized this plant for what it was. It had not been in the trade. Now all of that is changed with the flowering of a collection made on Mindoro, in the Philippines, by Anthony Arbias of Manila. I got a cutting from his plant 2 years ago when I visited him and the pictures shown here are from the first flowering of that collection. I hoped that it was the real eugenioides and I believe that is what it is.

Eugenioides in Greek means "Eugenia like". Eugenia is a group of tropical and subtropical Myrtles whose new leaves are a pinkish-colored that turn green as they mature. Several Hoyas have this character, as – *H. odorata, H. oleoides, H . paziae (eugenioides)* and *H. sp Paz.*

Hoya paziae (eugeniodes) growth

Hoya paziae (eugeniodes) flower



Hoya eugeniodes (H. paziae), Schechter's herbarium sheet. Notice the small size of the flower compared to the leaf.

Dale confirmed my opinion: *The above material from Ted Green is more closely like the Type sheet except that the calyx sepals, are not as linear nor ciliate as on the type. Ted informed me this plant's flowers are odorless, as noted by Schlechter. I cannot determine from the copy of the type sheet if the petiole is grooved but it appears so; also the leaf angles seem to agree. This new plant also has a Pollinarium similar to the type drawing having a perpendicular retinaculum and is also relatively long as in his drawing. Here the coronal lobe outer structure bears some resemblance to Schlechter's drawing.*

For now I would conclude this is pretty close to the Type, only the sepals bother me!! Dale Kloppenburg.

By Jove! I think we've got it! But, I have to admit that it is not as handsome (in growth or flower) as the thing we have been calling paziae.

Hoya sp Paz. Comparison of flower to leaf and comparison of *H paziae (eugeniodes*) and *H. sp. Paz*

Hoya leucantha (H. cembra)

Dorothy and Ted Green
Green: Plant Research, Kaaawa, Hawaii
June 2011

Fertilizer and Fertility

The organic decomposition of peat moss, sphagnum, bark and other potting media will provide your plants with a lot of nutritional needs. In nature, leaf mold, decomposition of bark, litter, dust, animal manure (birds, ants, etc.) provide the necessary nutrients. Even rainwater contains nitrogen, the most essential plant nutrient. We want our home grown hoyas to look better than most struggling wild plants, so we feed them. Most wild plants are ragged, mixed with dead and insect chewed leaves and dead and dying stems. Their leaves are for the most part smaller and thicker than cultivated plants and may even be different in shape. Sometimes the transformation to culture is amazing. Our cultivated plants certainly get more attention and loving care than wild plants. The question that arises is what is necessary and what is excess? Too much and we have a dead or burned plant. It is always good to use fertilizers judiciously on potted plants. If the plant is continuously in growth, it needs a constant nutrient source. The plant takes up nutrients in the form of ions and can not tell the difference between organic and inorganic sources. They also cannot tell the difference between cheap and expensive nutrients. Let's look at plant nutrition and nutrients closely. Of the more than 100 chemical elements, 16 are known to be essential for plant growth. Others may eventually be found to play some role in plant growth or function in very minute amounts. Many of us would mentally skip over the 3 major ones (carbon, hydrogen, and oxygen) because they are so common. In a sense, they are "free" because they are taken from the air and water The 13 other essential elements are normally absorbed from the soil by the plants' root system. I say normally, because the recent advent of foliar nutrition is an exception to this general rule.

These 13 elements are divided into primary, secondary, and micro plant nutrients on the basis of the relative amounts required for plant growth. None is more essential than any other, regardless of the amounts required. Briefly, carbon is a basic building block for plant life. It is taken from the air in the form of carbon dioxide. Photosynthesis combines the carbon with hydrogen and oxygen to form carbohydrates. Oxygen is required for plant respiration. Hydrogen, along with oxygen, forms water, which constitutes a large portion of the total plant weight. This water is required for the transport of minerals and plant food and the chemical reactions necessary for plant growth.

The primary plant nutrients are nitrogen, phosphorus, and potassium. Most of the nitrogen is taken up by plants in the nitrate form (as negative ions) NO-. The phosphorous is absorbed as HPO -, HPO = or PO = depending on the soil pH (its acidity). Plants take up the potassium in the form of a positive ion, K+. In the fertilizer we purchase for our hoya plants, the various 3-numbered formulas, e.g. 8-24-10, stand for these 3 primary nutrients; nitrogen, phosphorous and potassium in that order, as N, PO, K — and represents the percent by weight.

The secondary plant nutrients are calcium, magnesium, and sulfur. The 7 micronutrients are zinc, iron, manganese, copper, boron, molybdenum, and chlorine. Balance is important in plant nutrition. By the judicious use of fertilizers, our objective should be to supplement the capacity of our potting mix to supply nutrients for ideal growth and flower production. There are many choices for the consumer. Keep in mind what you want, what you are getting, and how much you are paying for it. In most instances you need only supplement the nutrients already present. It may be well to

occasionally supply micronutrients but not as a steady diet as they are usually expensive. So are small containers of specialty plant foods. On the other hand, an 80# sack of 16-16-16 for $9.95 may go to waste if it takes years to use. Foliar sprays and time released fertilizers have their place. The former for quick response and the latter because they can be applied infrequently. Many growers will apply a high nitrogen source fertilizer in the spring, the rapid growing period, and switch to high phosphorus in the fall when growth slows, in order to promote bloom and to harden the plant off for the cooler winter months. Light, however, is a much more important factor to good plant growth and bloom than high phosphorous. Use a well balanced fertilizer all year long, give your plants all the light they can take without burning them and you won't have to worry about whether your plant is getting the proper nutrients.

Pots and Potting

Many of the hoyas in nature are epiphytes. Most spend the greater part of their lives not connected to the ground but living scrambling over bushes, small and large trees, high up in the forest tops. Some may germinate in the damp litter of the forest floor but the base is in most cases eventually destroyed, dies out or whatever and the plant becomes a tree dwelling epiphyte.

We may duplicate to some extent this growth type if we have the room, say in a greenhouse or outdoors in tropical areas. This works best with small to medium sized growing hoya species. Find a suitable section of tree trunk or limb and wrap it with sphagnum , burlap or other material to retain moisture and for a place to affix your cuttings (a place of support). Stick rooted cuttings in at various places and secure them with plastic floral tape, hairpins or other holders. I have found from experience in my area the plants prefer the north, shaded side of the trunk. Once established, many hoyas will thrive in this situation. Other epiphytes like tillandsias and some orchids do well sharing this space with your hoyas. It is almost impossible to overwater plants in this situation, and will need a lot more water, almost every day in summer and in areas of low humidity.

Going back to conventional potting, It is preferable to use plastic pots for many reasons but clay, fiber and other materials are also suitable. Most plastic pots are available in square sizes and more will fit in a given area. In addition, plastic pots are easier to clean, sterilize and reuse than clay pots. Moisture retention is better, which can be a plus or minus. Most hoyas, even strong growing ones, can be started in a 4" pot. Even two or three cuts of the same clone may be started in this size pot. Seedlings should be transferred first into 2" pots at the 3-4-leaf stage, and later on to a larger pot. Small species will also do best started in this size pot. Keep pots in groups to raise the humidity in the area, if at all possible. Do not isolate pots when plants are small and just getting started. In groups it will be easier to attend to their watering and other needs.

Large vigorous species, like *Hoya diversifolia*, *Hoya meliflua*, *Hoya obovata*, Hoya *excavata* and *Hoya kerrii*, may be started in 6" pots or hanging baskets if you prefer, but be careful not to overpot. It is better to wait until the 4" pot plant shows signs of being root-bound to move it to a larger pot size. When repotting older plants make 2-4 vertical slices through the root ball to provide new ends for root growth to start from. Repot with new mix around this root mass and bury just below the new soil line, firm the mix and water thoroughly. Be sure the old

root mass is wet. Watering slowly close to the plant stem and root may be necessary to moisten the root ball. Keep it moist until new roots extend into the new, surrounding potting medium.

Other types of containers are good for certain plants. Wire baskets lined with moss and then a layer of burlap or fine mesh and planted with hoyas make nice containers for hoyas in areas where the water drip does not matter. The bushy plants such as *Hoya cumingiana* and multiflora, and the hanging, dangling kinds such as *Hoya bella, bilobata* and *tsangii* like these containers. As they grow and mature, they may root on the damp moss along the sides and even send runners out the sides and bottom. Coconuts with husk intact have been transformed into beautiful hanging planters. The hoya plant is placed in a hole cut into the top where it will grow inside. The vine is then pinned in a circular fashion around the husk. This is much like a hanging basket but much more natural and makes a ball of foliage.

There are species of hoya that are adapted to limestone areas and will benefit from chunks of crushed coral, limestone, sea shells, and marble, anything that will provide calcium carbonate. *Hoya cumingiana* and *Hoya citrina* come to mind. *Hoya serpens*, a small creeping species from the cool Himalayan regions, areas swept by monsoon breezes seem to prefer shallow containers kept moist and shaded. A cool place under a bench seems ideal for mine. It grows on a log and dangles down over the sides. Tree trunks and horizontal limbs in the shade are ideal situations for this and other small species. Even the medium compact Hoya memoria likes these conditions.

Small vining species will grow up and cling to rough wood and rock surfaces. A plywood wall or cement or rock wall where they will not be exposed to cold is suitable. In protected areas and favorable locations such as greenhouses, small pockets added to vertical surfaces can be used to start plants. Otherwise we must make do with light gardens, windowsill, basement areas or plant rooms. There are lots of garden books to help the indoor gardener.

Keeping it clean: Always use sterilized pots and potting medium. This includes the container that you store or mix the potting medium in. Think clean! It should also apply to the bench or shelf upon which you grow your plants. If you re-use your clay pots, be sure to scrape and scrub them inside and out. Especially remove all old roots sticking to the sides of the pots. After they are visibly clean, use a Clorox solution (household bleach), one cup of bleach to5 gallons of water. A 5 gallon plastic pail is a good container to soak the cleaned pots in. Soak them for at least half an hour. Rinse thoroughly and let them dry on a clean surface. Plastic pots with their smooth non-porous surfaces are ideal for potting and lend themselves to sterilization and re-use. Always use a fresh solution of Clorox since it loses its effectiveness rapidly. Any left over solution can be used to brush or scrub your potting benches. Pruning and cutting instruments ideally should be sterilized after each cut. However, since Clorox or any chlorine bleach tends to oxidize and rust steel, a better choice would be Lysol or better yet, Hydrogen peroxide sprayed onto the cutting blades after each cut. Remember, prevention is much easier than trying to control an infection that has got a foot-hold on your entire collection of plants.

PHOTO GALLERY DESCRIPTIONS # 1

Top Left

H. brevialata: This name would suggest that this is a small plant, not so! The leaves are small but not too small; about 2 inches long by 1/1/2 inches wide, just a nice size. The plant itself can get huge with literally dozens of umbels all open at once. The flower petals are a beautiful dark rosy pink and a deep cranberry red corona with white tips on the petal edges. This species is in the section acanthostemma which are noted for their beautiful and abundant flowers, it is also one of the few species that blooms spring, summer, fall and winter, year after year with never a break to rest. I'm always afraid it will bloom itself to death, but so far, it hasn't: Photo by Ann Wayman

Top Right

Hoya erythrina: I received this plant from Michael Myashiro as a cutting back in 1994. It is a gorgeous plant with large odd shaped leaves which have a wavy edge. The leaves are beautifully veined, and can be variegated with several different colors, including pink, white, silver, brown and of course, green. It does require large amounts of bright light in order to bloom but it is also the bright indirect light that brings out the gorgeous colors in the leaves. There are usually only ten to twelve flowers to the umbel but the flowers are topaz yellow with the corona the same color but fading to almost white on the topside: Photo by Ann Wayman

Center Left

Hoya chuniana: This is a species discovered and thought to be a yellow version of H. chuniana by David Liddle. Whatever it is, it has leaves and growth pattern very much like the H. chuniana that we are all familiar with. The flowers, however, are greenish yellow, about twenty more flowers per umbel, and with a pure white corona. The leaves are larger and darker green: Photo by David Liddle

Center Right

Hoya sp. Bangkok # 4: This is the species that I chose for the very first issue of Fraterna back in 1988. As far as I know, it still hasn't been identified. I believe Dale Kloppenburg is working on that right now and may be giving it a name soon; if he can't find a matching species already named. It is a beautiful thick leaved species with a spectacular flower and a wonderful fragrance: Photo by Ann Strahm

Bottom Left

Hoya flagellata: A beautiful small growing plant, with leaves and flowers similar to Hoya caudata The leaves are much smaller but the same cardboard look and feel. The flowers are also quite similar to the H. caudata flowers but smaller and with very long, white, fuzzy stamens growing from the center. The 8 to 12 flowers are pure white with a dark scarlet red corona. This is not an easy hoya to flower and normally has only 1 or 2 umbels open at a time. The only real fault that I have found with this species, outside of its low flower count, is that it doesn't appear to have any fragrance: Photo by Ann Wayman

Bottom Right

Hoya halophila: This is a beautiful, rather small growing species from North Eastern New Guinea, growing on trees along the coast of Etape, and described as an ornamental clinging vine. It is a favorite of mine and another that blooms almost constantly. The flowers are small but exquisite. Dark, rosy pink with lighter pink petals that fold against the sides of the corona forming a conical crown. Everyone who comes into my greenhouse stops to look at this happy little plant and usually leave smiling, even if I tell them it's not for sale. I love it! Photo by Ann Wayman

PHOTO GALLERY # 1

PHOTO GALLERY DESCRIPTIONS # 2

Top Left

Hoya parvifolia: This cute little treasure is surely a favorite of all who own it. It is a small plant but by no means a miniature. The leaves are extremely fuzzy, and small, however, the plant itself can grow quite long. I have several that hang down over the basket at least a foot and a half, a beautiful little plant. The flowers are yellowish green and also quite fuzzy. It normally has four or five flowers to the umbel and last for many days. I have had as many as ten umbels open at once. It is also very prolific in producing seed pods, since the flies love the flowers, I am assuming that they are the pollinators. Sorry, no fragrance: Photo by Ann Wayman

Top Right

Hoya imperialis var. rauschii: An exceptionally beautiful species that I have trouble getting to bloom. The plants are large and shrublike with very large leaves. This particular variety has wavey edges to its leaves. As the picture shows, the flowers are gorgeous, heavy textured petals and corona. The corona is pure sparkling sugar white with some red or dark pink in the center. Since mine don't bloom, I can't say for sure whether it has any fragrance, nor do I know which section of the milkweed family it is in. I keep trying to flower them and will continue trying everything I know. If I ever do, all our members will hear of it: Photo by Ted Green

Center Left

Hoya kerrii: The original "sweetheart hoya" The leaves of this plant are large and perfectly heartshaped. The vines are thick and grow extremely long, grabbing onto and winding around everything in their path. There are several versions of this species, The well known thick leaved one with completely glabrous leaves to the very ornamental and numerous variegated versions and also a fuzzy leaved one, that appears to me to be the best bloomer. The flower petals are extremely fuzzy and usually pure white but can be a rather dirty looking white. The nectar of these flowers is such a deep reddish purple that it looks black and can stain anything that it drips on. Not recommended for growing in the house: Photo by Ann Wayman

Center Right

Hoya coronaria: An exceptionally beautiful member of the Ereostemma section of Hoya. True to form the flowers are extremely waxy and heavy textured. The colors are yellowish green as a rule but I have seen a few that were rose red. The corona is the same yellowish green in both varieties with a dark red center and stands high above the flower petals. This is a large shrub type hoya with gorgeous, very dark green leaves. They don't seem to bloom very well in greenhouses but do wonderful in areas where they can be left outdoors for at least ten months of the year. That is not a description of my growing conditions, so I don't get to see the flowers but enjoy the photos from others: Photo by Kim Yap

Bottom Left

OOPS! Don't know how this got into the magazine, but since she is the greenhouse protector from rats and mice, she gets to stay. This is Annie, my registered Bengal cat. Four generations from the wild Asian Leopard cat and the love of my life. She weighs seventeen pounds, is carmel orange with black stripes and has beautiful green eyes. She loves to pose for photos: Photo by Claudia Ganoung

Bottom Right

Another OOPS? No, this is Bonnie my other Bengal cat. This cat came from a different cat breeder but is the same age although only half the size. Her coloring is very pale tan and silver with black spots, A true Leopard cat. Her sides and belly is covered in solid black spots. These cats don't meow, they bark like very small dogs. They can also jump at least ten feet into the air: Photo by Claudia Ganoung

PHOTO GALLERY # 2

ONE OF A KIND

Nothing like this has ever been attempted before! Dale Kloppenburg's wonderful text in "The World Of Hoyas" has been kept intact, while all the old black and white photocopies of herbarium sheets have been replaced by full page, full color photos of beautifully staged foliage shots with large photo insets of flower umbels that represent the particular species.

Some of the very best photographers in our organization have participated in the publishing of this book with many beautiful photographs, all labeled and correctly identified to the best of our knowledge.

If you have ever wondered what an entire plant, or even the leaves and growth pattern looks like when you see an especially beautiful umbel of hoya flowers, now is your chance. This beautiful book has been professionally bound in perfect binding with a semi-soft vinyl cover. contains 260 pages with several blank pages at the back for notes. Available now. Just $48.00 for the book plus $3.25 book rate postage in the U.S. Postage for priority mail anywhere else in the world is at present $13.50 U.S.

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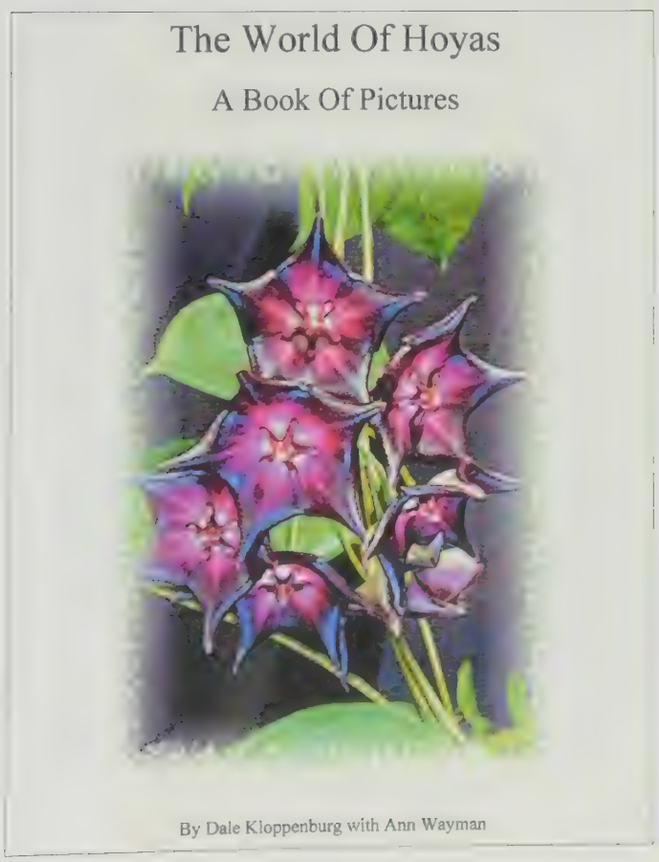

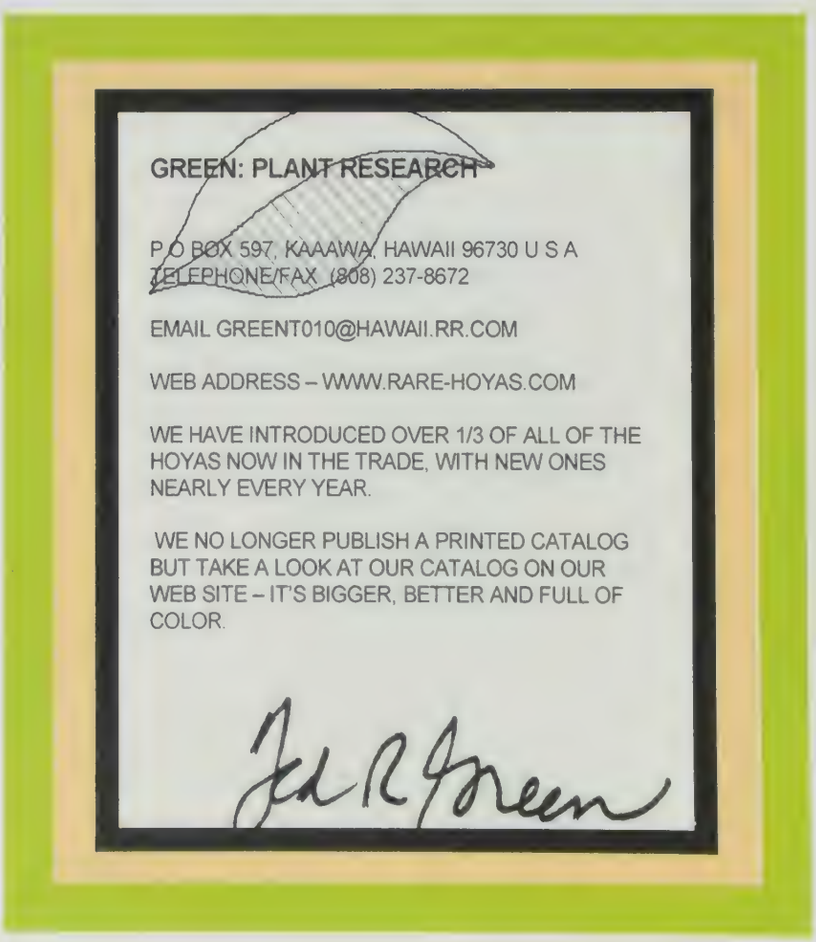
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Hoya skineriana *Kloppenburg*

Photo by Lina Paul

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Hoya retusa Dalzell

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Errors of fact may occur from time to time in "Fraterna", it is the policy of the IHA to publish corrections of fact, but will not comment on matters of opinion expressed in other publications.

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Table Of Contents

Front Cover: Hoya skinneriana *Kloppenburg*

Page	2	Masthead
Page	3	Table Of Contents
Page	4	Our Cover Story-Hoya skineriana by Ann Wayman
Page	5-8	Hoya skineriana *Kloppenburg*
Page	9-13	Hoya bandongii *Kloppenburg & Ferreras*
Page	14	Advertisement
Page	15	Corrections to previous species
Page	16-23	Ereostemma badaensis *Kloppenburg & Green*
Page	24-27	Hoya isabelaensis *Siar & Ferreras*
Page	28-30	Hoya santiagoi *Kloppenburg & Siar*
Page	31-37	Will The Real Hoya vitellinoides Please Stand Up by Ted Green
Page	38	Large plant of Hoya Skinneriana: Photo by Ann Wayman

Back Cover

Our Cover Story

Hoya skineriana *Kloppenburg*

This particular hoya was purchased from Dale Kloppenburg back in the latter part of 1987. It was a beautiful large plant that looked very much like an especially large H. carnosa. At the time it was being sold commercially with the name DD'S Big One. The leaves are dark green and when grown in a slightly shady area the leaves are normally twice the size of most carnosa varieties. The flowers are bright pink and from ½ inch to ¾ inch in size. They also look like a combination of H. carnosa and H. pubicalyx. I have always thought that it was probably a hybrid cross between the two species, Dale says it is not a cross.

I have literature from Dale with the spelling of Skinners name as Skinner with 2 n's and Skiner with 1 n. I'm not sure which is correct.

This is a gorgeous hoya with spectacular looking foliage and flowers. It is also a fast and easy grower and in the past has bloomed regularly. I have four very large plants of this species which unfortunately have decided not to bloom for me for the past three years. I believe it's probably one of those hoyas that prefers very bright light and slightly pot bound in order to bloom.

Ann Wayman

Photo by Lina Paul

Hoya skinneriana Kloppenburg & Wayman

Hoya skinneriana Kloppenburg sp. nova. Typus 2011 (UC) ex hort. hic designatus via Lina Paul, Escondido, California, USA. Similis *Hoya monetteae* Green, Fraterna 17/2.15, 2004 sed corolla grandiorum, diam. 2.5 cm versus 2.0 cm et coronae lobus longiorum 0.55 cm versus 0.54 cm, ultimus pollinia magnam 0.92 x 0.26 mm versus 0.60 x 0.20 mm, differt.

This plant was grown originally by Doris Skinner R.N., of Modesto, CA, for whom we am naming it, and was known in the trade at the time as "sp. DD's Big One". Doris was an avid hoya collector and a member of the International Hoya Society for years. She died 12 April 2003 in Modesto, CA. I believe this plant may have come from San Luis Gardens (Rudy Bachmann's) although possibly not. The species is similar to a *Hoya carnosa* with similar but somewhat larger foliage and larger flowers, however still with clear sap. A much more vigorous plant. As stated in the Latin above it is also similar to *Hoya monetteae* Green but the corolla diameter flattened is 0.5 cm larger and the pollinarium is larger 0.92 mm long and 0.26 mm wide versus 0.60 cm long and 0.20 cm long.

Photomicrographs follow: Data from flowering in Fresno, California 7/28/95

Pedicel: section enlarged ca. 20X terete, curved, glabrous, very finely granulate, 3.5 cm long and 0.10 cm in diameter.

Calyx: dorsal surface enlarged ca. 10X, the sepals are 0.40 cm long and 0.22 cm at the widest with a small basal overlap, sub-linear with sub-obtuse apices, ligules are present at the sinuses

Ovaries: columnar, glabrous 0.25 cm tall and base pair 0.14 cm wide.

Corolla: ventral surface view of the center and sinus of the corolla outside surface enlarged about 8X. This surface is glabrous with a slightly sunken collar area (This side convex). Edges are of the sinus are rolled under as are the edges of the coronal lobes.

Outside surface of a lobe of the corolla enlarged about 8X, Note the apex and sides turned under, the upper surface is densely pubescent with long diamond shaped hair cells. This is a large flower.

Sinus – sinus	0.67 cm
Sinus – center	0.67 cm
Apex – center	1.25 cm
Apex – sinus	0.82 cm
Widest	0.90 cm

The flower flattened is 2.50 cm in diameter: is not cut quite half way.

Corona bottom view enlarged about 8X. This side is channeled with distinctive sides which are finely sulcate. Central column is prominent and thickened, with bulbous protrusions around its base.

Corona: dorsal (upper) surface of the corona and corolla at the sinus area enlarged about 8X. The inner lobes are dentate and do not reach the center where the anthers are exposed. Dorsal surface of the corona is humped (convex) except for just back of the inner lobe. There are side shelves starting near the anther wings and extending to apex. The outer lobe is narrowly rounded and does not quite reach the corolla sinus. The apical tip turns down.

Apex – apex	0.55 cm
Apex – center	0.62 cm
Widest	0.27 cm
Anther wing – aw.	0.33 cm
Aw. – retinaculum	0.15 cm
Ret. – center	0.12 cm
Ret. – ret.	0.13 cm

Style crown enlarged about 20X. the anthers are pealed back on the upper side and below and to the left the inner apices of the coronal scales are visible. This is a ornate central column sort of gelatinous enlargement but not a definite capitate structure as in *Hoya darwinii* Loher.

Pollinarium enlarged about 82X. This is a large pollinarium.

Pollinia

length	0.92 mm
widest	0.26 mm

Retinaculum

length	0.40 mm
shoulder	0.14 mm
waist	0.10 mm
hip	0.15 mm
ext.	0.10 mm

Translator

length	0.07 mm
depth	0.02 mm

Caudicle

bulb diam. 0.06 mm

Ratios: pol./width 3.5 pol./ret. 2.3

Translator/caudicle type: ls/o

Photo of the flower of this species by Lina Paul.

A loose globose cluster of about 20 flowers or more.

Peduncle: 4.5 cm long, terete, pubescent.

Picture of the foliage by Lina Paul.

The foliage is petiolate, opposite, glossy, glabrous, elliptic with a dorsal concave center, edges somewhat undulant, apex acute to sub apiculate; with clear sap. Nerve angles ca. 40°, with ca. of 4 pairs, midrib raised below, petioles terete ca. 0.17 cm long.

Leaf measurements: most leaves are larger on the older stems, below from the first flowering stem.

1. 8.0 cm x 4.0 cm
2. 7.7 cm x 4.0 cm
3. 6.0 cm x 3.5 cm
4. 7.5 cm x 3.6 cm
5. 9.0 cm x 4.3 cm
6. 8.8 cm x 4.4 cm

Measurements of three mature leaves:

1. 18.5 cm x 6 cm
2. 18 cm x 6 cm
3. 16.5 cm x 6.5 cm

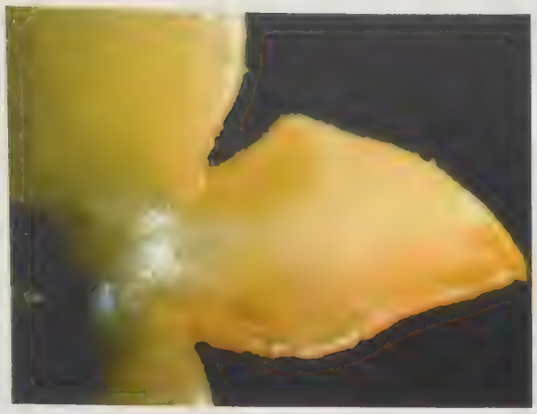
Hoya bandongii Kloppenburg & Ferreras 2011

Hoya bandongii Kloppenburg & Ferreras, sp. nova, Typus 14596 (PUH) hic designatus. Similis *Hoya benguetensis* Schlechter, Philippine Journal of Science 1(1906)301 sed differt. Epiphytic, volubilis, scandens, ramosa, caule ramisque filiformis, elongates, flexuisi, teretibus, glabris, laxe foliolis; foliis ovatis-ellipticus basi obtusis apice acuminatis glabris, textura crasse coriaceis 6.5-8.5 cm longis et 3.5-4 cm latis, petiole 1.5-2.5 cm longis. Umbelliformis ca 13 flora, pedicellis filiformibus grasilibus, glabris ca 2.5 cm longis. Calycis segmentis ovatis-ellipticus glabris, margine ciliates 0.19 cm longis. Corolla reflexa extus glabra intus puberulis, lobis ellipticus acutis ca. 0.67 cm longis parties incisura et 1.76 cm diametente. Coronae foliolibis glabris, dorso obata, apice exteriore cubobtusa supra concavula, subtus sulcate, apice interioro clavate, longitudineliter donato et anthera alae truncate productus similes Hoya benguetensis.

This new species was collected by Ulysses Ferreras on Negros Island, Philippines. His collection number is UF 770. This new species is named to honor Ramon Bandong the person in charge of the University of the Philippines (UP) Diliman herbarium where Ulysses usually deposits most of his specimens. Raymon was together with Ulysses during fieldwork in the forest of Mt. Kanlaon and was the first among the field crew who spotted this Hoya. This new species has characteristics of several Philippine Hoya species. Like *Hoya benguetensis* it has the squared off extended anther wings, and like Hoya coriacea with the keeled inner coronal lobes and the coronal lobe length of Hoya mindorensis and Hoya cumingiana yet it is in many ways different than any of these species.

Pedicel: enlarged ca. 31X. Strict, terete, glabrous 2.5 cm. long x 0.08 cm. in diameter. Surface very finely granulate.

Calyx: side view enlarged 15X. Sepals are ovate-elliptic, ciliate otherwise glabrous 0.19 cm long x 0.12 cm at the widest. Apex is narrowly obtuse.



Corolla outer surface enlarged ca. 8X. This surface is glabrous. Lobes deeply cut.

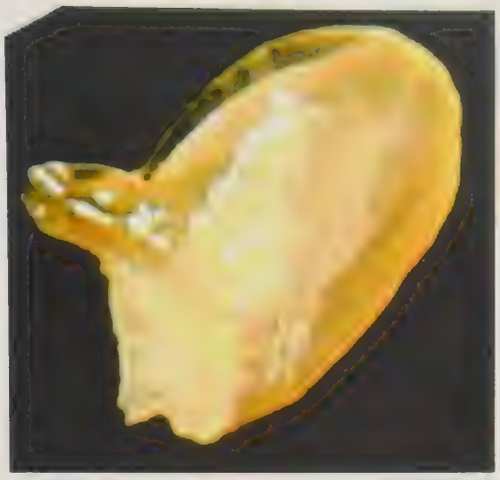
Sinus – sinus	0.33 cm
Sinus – center	0.25 cm
Sinus – apex	0.67cm
Apex – center	0.88 cm
Widest	0.50 cm

Corolla inside surface enlarged as above, this surface is very finely puberulous, lobes are reflexed, center is columnar and greatly thickened. Only a tiny tip of the corolla lobe inside is glabrous, as is the column.

Side view of one coronal lobe on the corolla enlarged ca. 12X. The coronal lobes are concave with no umbo or keel, outer apex turns down, is raised slightly above inner clavate keeled inner lobe that is exceeded slightly by the anthers, lobe is channeled below, glabrous all over and finely sulcate surfaced.

Top view of two coronal scales enlarged 12X. The anther wing apices are blunt (squared off) and extended beyond the sinus.

Apex – apex	0.38 cm
Apex – center	0.40 cm
Scale depth	0.25 cm
Widest	0.26 cm
Ret. – ret.	0.13 cm
Aw. – aw.	0.28 cm



Side view of a coronal scale enlarged ca. 21X. Inner lobe is clavate and keeled, dorsal of lobe is concave. Anthers exceed the inner lobe apex. Outer lobe ventral surface has shelf like extensions from near the retinaculum towards the outer rounded apex, this results in some protrusions at the outer base. Seen in picture above at bottom outer edges.

Pollinarium enlarged ca. 140X.

Pollinium	
length	0.57 mm
widest	0.22 mm
Retinaculum	
length	0.31 mm
shoulder	0.24 mm
waist	0.20 mm
hip	0.24 mm
ext.	0.12 mm

Translator

length	0.13 mm
depth	0.04 mm

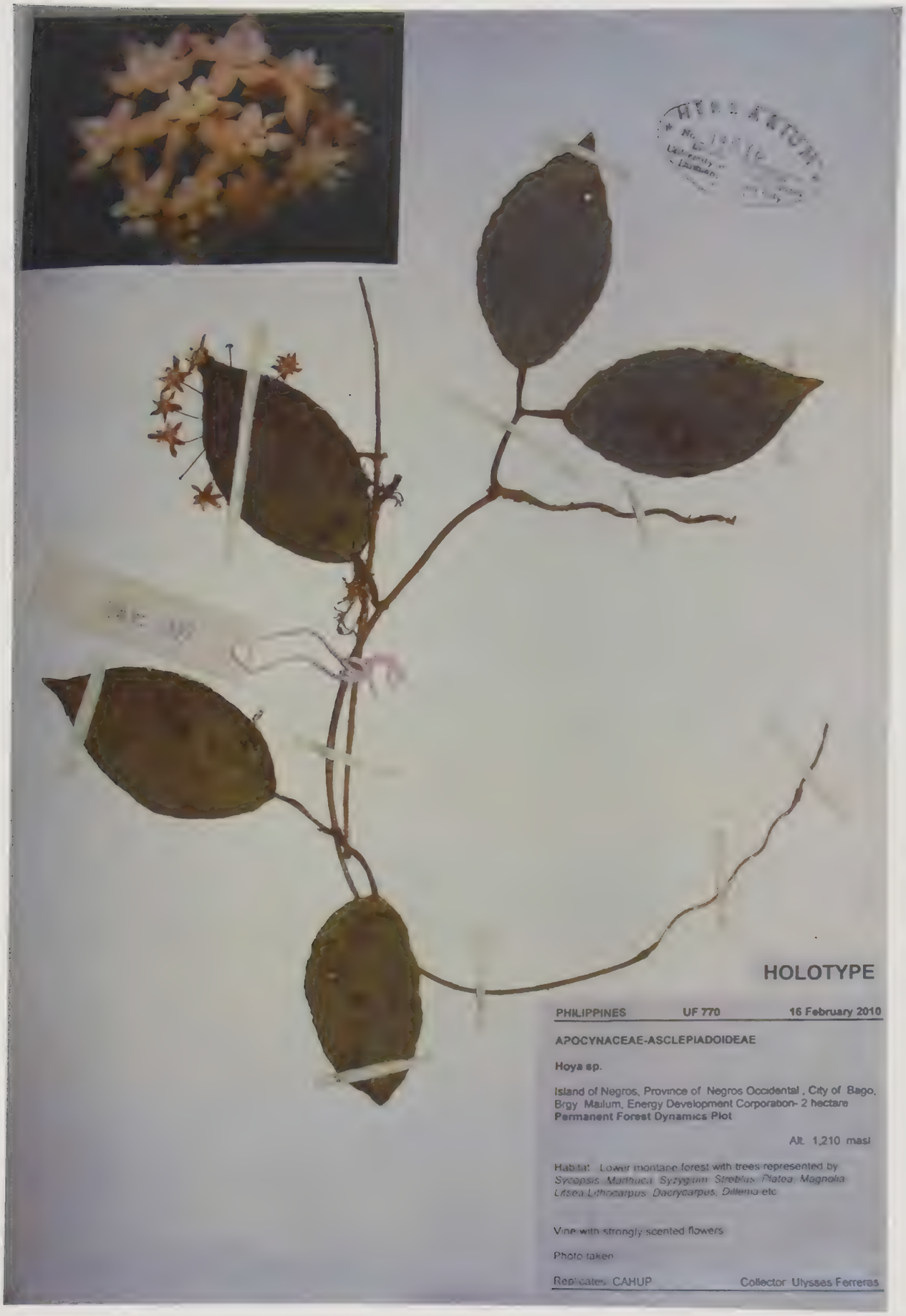
Caudicle

bulb diam.	0.11 mm

Translator type: ls/o

UF 770: Measurements in centimeters

UF 770	Leaf 1	Leaf 2	Leaf 3	Leaf 4
Leaf Length	6.5	8.5	8.5	8.5
Leaf Width	3.5	4	4	4
Petiole	2.5	2	2	1.5
Peduncle	4.5			
Stem Diameter	0.2			


HOLOTYPE
PHILIPPINES UF 770 16 February 2010
APOCYNACEAE-ASCLEPIADOIDEAE
Hoya sp.
Island of Negros, Province of Negros Occidental , City of Bago, Brgy Malum, Energy Development Corporation- 2 hectare Permanent Forest Dynamics Plot
Alt. 1,210 masl
Habitat: Lower montane forest with trees represented by Syzygium Streblus Platea, Magnolia Litsea Lithocarpus Dacrycarpus, Dillenia etc
Vine with strongly scented flowers
Photo taken
Replicates: CAHUP
Collector: Ulysses Ferreras

ONE OF A KIND

Nothing like this has ever been attempted before! Dale Kloppenburg's wonderful text in "The World Of Hoyas" has been kept intact, while all the old black and white photocopies of herbarium sheets have been replaced by full page, full color photos of beautifully staged foliage shots with large photo insets of flower umbels that represent the particular species.

Some of the very best photographers in our organization have participated in the publishing of this book with many beautiful photographs, all labeled and correctly identified to the best of our knowledge.

If you have ever wondered what an entire plant, or even the leaves and growth pattern looks like when you see an especially beautiful umbel of hoya flowers, now is your chance. This beautiful book has been professionally bound in perfect binding with a semi-soft vinyl cover. contains 260 pages with several blank pages at the back for notes. Available now. Just $48.00 for the book plus $3.25 book rate postage in the U.S. Postage for priority mail anywhere else in the world is at present $13.50 U.S.

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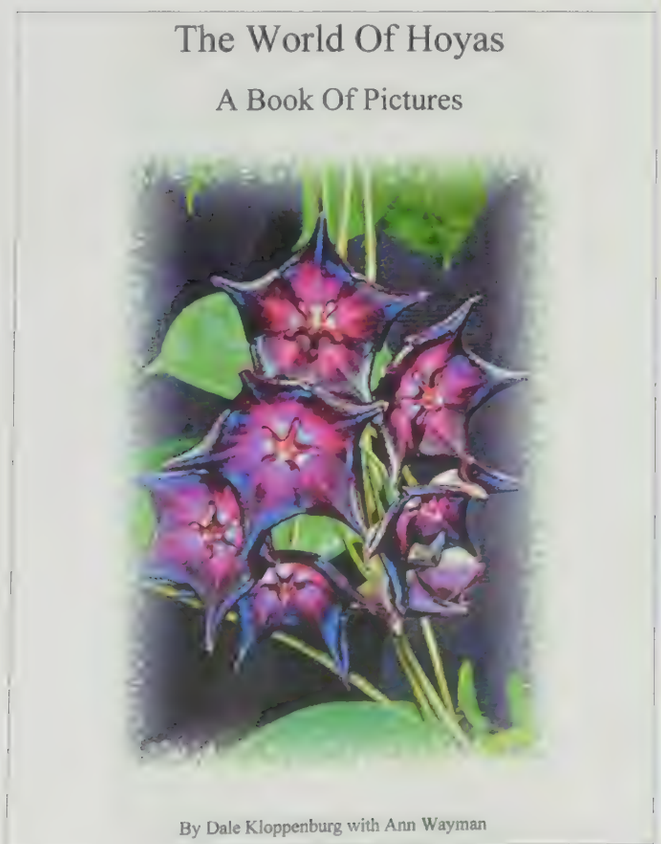

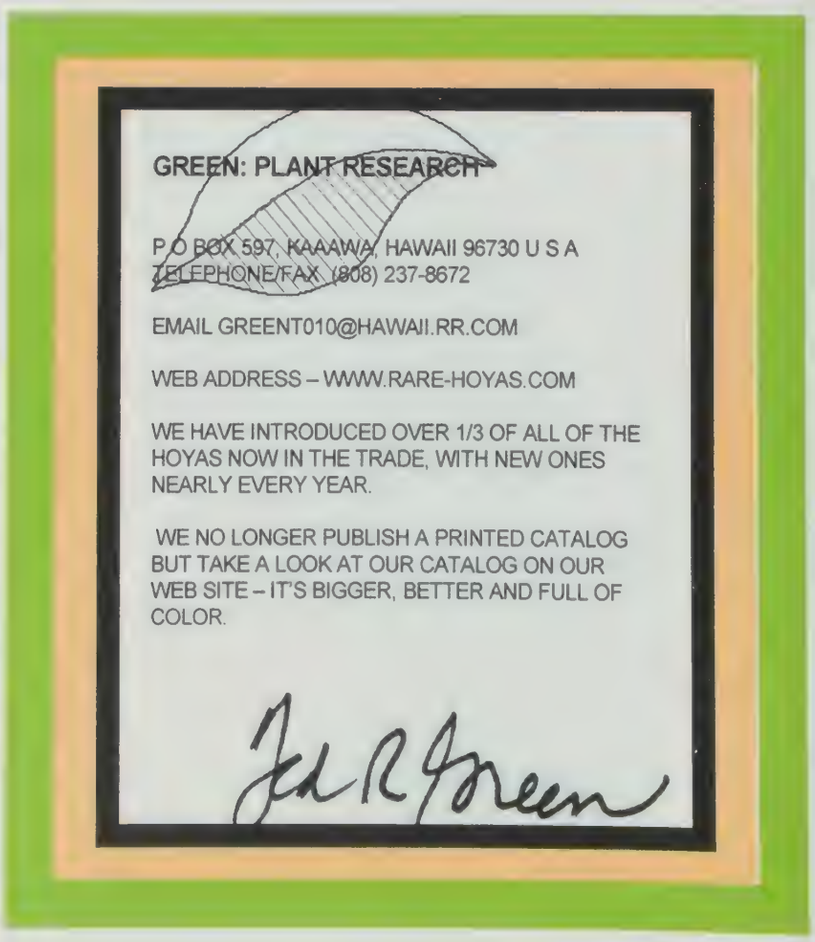
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WE HAVE INTRODUCED OVER 1/3 OF ALL OF THE HOYAS NOW IN THE TRADE, WITH NEW ONES NEARLY EVERY YEAR.
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Corrections: by Dale Kloppenburg

In changing species to the genus Eriostemma Fraterna 14 (2) 2001 the following corrections should be noted.

Species added: Eriostemme grandiflora (Blume ex Decaisne) Kloppenburg & Gilding. In DC. Prodromus 8 (1844) 635.

Corrected: Eriostemma guppyi (Oliver) Kloppenburg & Gilding. Type Guppy 188. In Icones Plantarum 23 (1892) Plate 2247.

Corrected: Eriostemma lauterbachii (K Schumann) Kloppenburg & Gilding. Type 930 (B). In Monatsschrift fur Kakteenkunde 1 (1896) 7-8.

Eriostemma pulgarensis (Elmer) Kloppenburg & Gilding. Type Elmer 12985. In leaflets of Philippine Botany 10 (1938-39) 3588-3590. Nomen invalid as published in English when only Latin was acceptable. See Elmers English description of this species in Leaflets of Philippine Botany 10.

Eriostemma pulgarensis Kloppenburg & Gilding sp. nova. Type Elmer 12985 hic designatus, foliis aveniis, ellipticus, basi rotundata, apice sub ovatisus sed brevis apiculatis, margine integra, superne glabra, subtus tomentosuli etinvolutis. Folio 5 cm x 9 cm vel parvior, deciduus, petiole superne sulcate, brevisime tomentosulis 1-1.5 cm longus; calycis late ovatis 0.40 cm longus, extus pubescentibus, apice late obtusis; corollae lobus 0.75 cm longis, ovatis, extus glabratus, intus puberulous; coronae foliola superne ellipticus; folia similes *Eriostemma ciliata* (Elmer ex Burton) Kloppenburg & Gilding sed flores sic usa distinctus.

Species added: Eriostemma zollingeriana (Miquel) Kloppenburg & Gilding. In Flora India Bataviae 2 (1856) 518.

Incorrect spelling of species in the original publications are automatically corrected to conform to modern botanical usage ICBN 60.5. Below is a list of my species properly presented.

Hoya cembrae Kloppenburg 1990

Hoya golamcoana Kloppenburg 1991

Hoya juannguoana Kloppenburg 2002

Hoya stoneana Kloppenburg 2006

In addition: Hoya ilagianum Kloppenburg, Siar & Cajana 2011 is changed due to the dedication in the type description to the Ilag family (male and female).

In the description of Hoya carmelae Kloppenburg, Siar & Ferreras in Fraterna 23 # 4 (2010) 9-13 we made a mistake in the leaf measurements at the end of the description. They should read, leaf length 1.4 cm and leaf width 0.9 cm-1.0 cm. This mistake was discovered by Torill Nyhuus.

Eriostemma badaensis Kloppenburg & Green

We would like to compare this new species with *Hoya coronaria* Blume Bijdr. Flora van Nederlandesch Indie Batavia (1825) 1063 from Western Java. This species has a very short and inadequate Type description. Our references (33) are listed at the end; none of which could adequately delineate a species for a definitive determination. Some descriptions are contradictory in some respects, probably representing different species. We have used first Kosteletsky's 1834 description to differentiate this new species and then some data from later descriptions.

Eriostemma badaensis Kloppenburg & Green sp. nova, typus 2011-1 (UC) hic designatus similis *Eriostemma coronaria* (Blume) Kloppenburg & Gilding, Fraterna 14/2, 4, 2001, sed pedicello longior 4 cm. versus 2.5 cm. Foliis infra pubes non villosis. Corolla grandior 5 cm diametro versus 3.8 cm et extrinsecus non villosum sed sparsus hirsutum, differt.

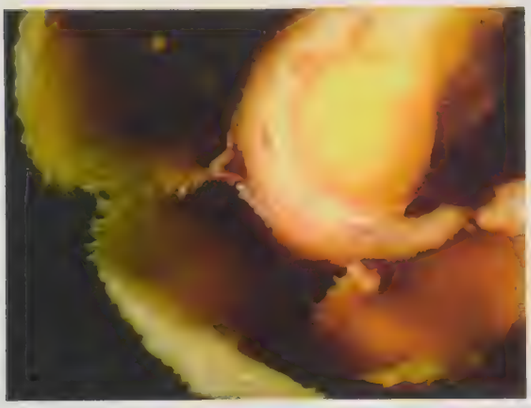
This new species is similar to *Eriostemma coronaria* Blume but different in that the pedicels are longer 4 cm versus 2.5 cm Leaves below are pubescent not villose. The corolla is larger 5 cm in diameter versus 3.8 cm, and the outer surface is not villose but sparsely hirsute.

Pedicel: 4 cm. long 0.45 cm diameter at smallest end 0.07 cm diam near calyx, pubescence of short stiff clear hair cells.

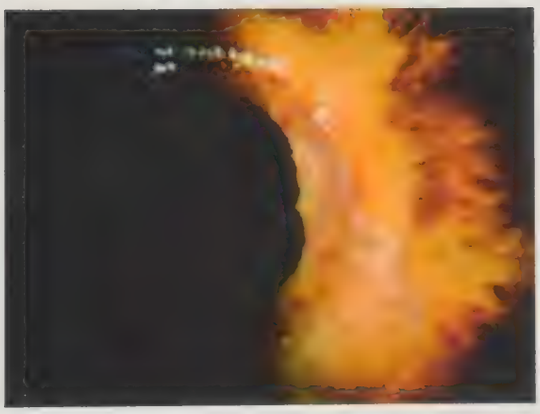
All enlargements below unless otherwise indicated about 8X

Calyx: sepals ovate, cupped with ¾ overlap at base, outside densely hirsute, do not reach the corolla sinuses, inside glabrous, small ligules at the sinuses. 0.45 cm long, 0.35 cm at the widest.

Ovaries: glabrous, columnar, 0.48 cm tall, 0.39 cm wide (base pair).



Ligules: glabrous triangular, at sepal sinuses.



Center outside: a raised domed structure, glabrous, tapering down and out to the corolla lobes.

Sinus of corolla from outside: turned under from above, glabrous above with cilia and some ciliate hairs in from edge. In the natural state:

Sinus – sinus	0.75 cm
Sinus – center	0.85 cm
Sinus – apex	1.25 cm
Apex – center	2.50 cm

Apex view from outside: edges thick, apex acute, above glabrous, hair cells inside from edge, cupped on this under side. Inside with sparse hirsute cells.

Apex view from inside: tapering acute, mostly glabrous.

Inside central collar, edges rounded, to a central ring of fine hair cells, below glabrous.

Column of the corona: thick soft spongy texture, 0.60 cm tall to the coronal lobe base, 0.55 cm at the widest near the central base, less wide above.

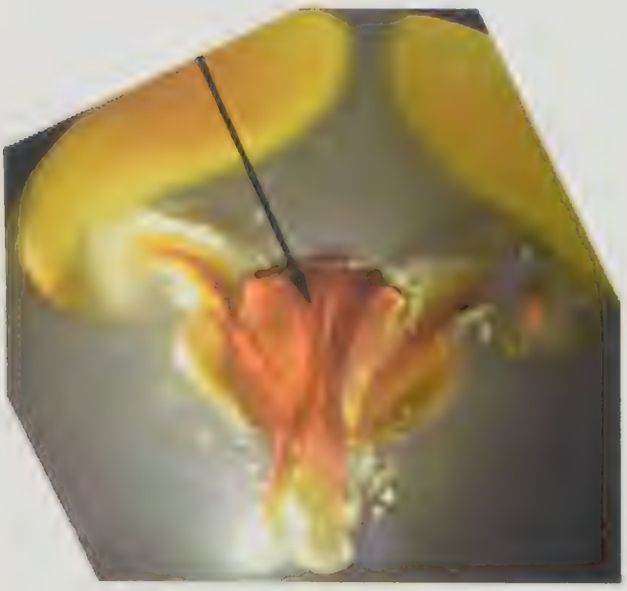
Coronal lobe underside: glabrous, dorsal area slick, with concave central columnar area, spongy material of column rising in the center area below 0.30 cm deep tapering from the wider columnar material. Outer lobes raised with apical area and edges rounded. Dorsal lobe 0.25 cm wide at beginning of slick smooth area, apical dorsal 0.38 cm wide.

Corona top view center: Top view of the corona. Inner lobes are spatulate, meet in the center, dorsal surface linearly with broken ridges out to the widening of the lobe. Lobe ends 0.09 cm wide.

Apex – apex	0.50 cm
Ret- ret	0.22 cm
Ret. – center	0.20 cm
Aw. – aw.	0.42 cm
Aw. – center	0.36 cm

Pollinarium above enlarged about 125X.

Below ca. 125X



Pollinarium

length	0.45 mm
widest	0.17 mm

Retinaculum

head	0.21 mm
length	0.25 mm
ext.	0.09 mm

Translator

bulb width	0.06 mm
stem depth	0.05 mm
length	0.45 mm

Caudicle

bulb	0.10 mm

Ratio:	pol/width	2.6
	Pol./ret.	1.5

Photos of the leaves taken by Ted Green of his plant growing at Kaaawa, HI. 2010.

The leaves are ovate with an obtuse base and a acuminate apex (Obtuse cum acumen). Edges are recurved. Dorsal surface slightly setose, ventral surface slightly rough puberulous. Midrib raised below with pinnate nerves visible 70 ° to the midrib. Leaf blade 12.5 cm. long and 6.5 cm. at the widest.

Peduncle curved, terete, glabrous, ca. 2 cm long 0.05 cm in diameter.

Some of the granite statuary about a mile west of where we discovered *Eriostemma badaensis*. This new species was collected NW of Bada village at the North edge of a field that had been cultivated (rice) where the field met undeveloped land. There was a drop off and scattered trees. At the base of the south face of one tree was this new Eriostemma species climbing the burnt trunk of the tree. It was not in flower at this time.

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33. Tropica (1992) 1020. A. B. Graf.
34. The Taxonomy and Phytochemistry of the Asclepiadaceae in Tropical Asia (1995) 86 "The Genus Hoya in Thailand" O. Thaithong.

I'm sorry folks, there will be no page numbered Pg. 23. We had to reformat the pages of this article on Eriostemma badaensis in order to do away with pg. 23. Seems there was too many mega bytes in the article to be able to convert to a pdf file. There was no crucial photos or text removed. All of this was discovered after I had already printed the table of contents. Please notice Hoya isabelensis starts at pg. 24

Ann Wayman

Hoya isabelaensis Kloppenburg, Siar & Ferreras

This hoya species was collected by Ulysses Ferreras 22 Feburary 2010 in the Luzon, province of Isabela, Municipality of Maconacon, Brgy. Reina Mercedes, along the Dicatayan River from a tree. Altitude: 45 masl. A fragrant cluster of ca. 18 flowers. Collection number is UF 783 Isabela.

Leaves elliptic, base cuneate apex acuminate acute.

Hoya isabelaensis Kloppenburg, Siar & Ferreras sp. nova, Typus 14599 (PUH) hic designatus: Isotypes at (CAHUP) & (PNH), pollinarua similes *Hoya pubicalyx* Merrill sed foliis basi cuneatus non obtusis; pedicellis glabrous 2 cm longis non leviter pubescentibus et 3.5 cm longis; sepalis granulosis-glabris non leviter pubescentibus; coronae lobis 0.37 cm longis non 0.50 cm longis, differt.

This new species has a pollinaria similar to *Hoya pubicalyx* Merrill but much smaller; the leaf bases are cuneate not obtuse and the pedicels are glabrous 2 cm long not lightly pubescent and 3.5 cm long; the sepals are granulose-glabrous not lightly pubescent, also the lobes of the corona are 0.37 cm long versus 0.50 cm long among other differences.

Details of parts below:

Pedicel: enlarged ca. 52X, 2 cm long, 0.04 cm in diameter, terete, strict, glabrous.

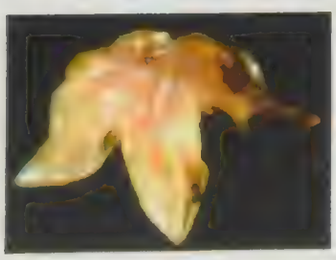
Outside view of the calyx enlarged as above, Sepals ovate triangular, 0.10 cm long x 0.09 cm widest, apices obtuse, overlap ca. ½. Outer surface glabrous-granulate, inside slick all glabrous. Do not reach the corolla sinuses.

Calyx: Inside surface with ovaries enlarged ca. 35X, the sepals are membranous, ligules are present. Ovaries columnar, darker color, 0.10 cm tall and 0.07 cm wide at base pair.

Outside surface of the flower enlarged ca. 18X. Surface is glabrous, granulate, sepals are very small and do not come near the corolla sinuses. The coronal apices exceed the lobes.

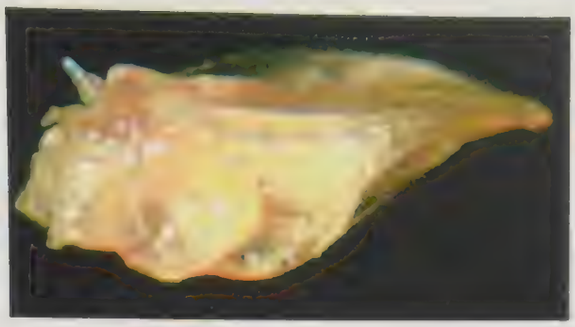
Sinus – sinus	0.30 cm
Sinus – center	0.27 cm
Sinus – apex	0.42 cm
Apex – center	0.58 cm
Widest	0.33 cm

Inside surface of the flower enlarged as above, Corona is horizontal, inner lobes drawn out narrowly spatulate, touch in the center, dorsal is concave with a central keel the full length, outer lobes tapered sub-acute and exceed the corolla sinuses. Surfaces are glabrous. Corolla inside if finely puberulous.

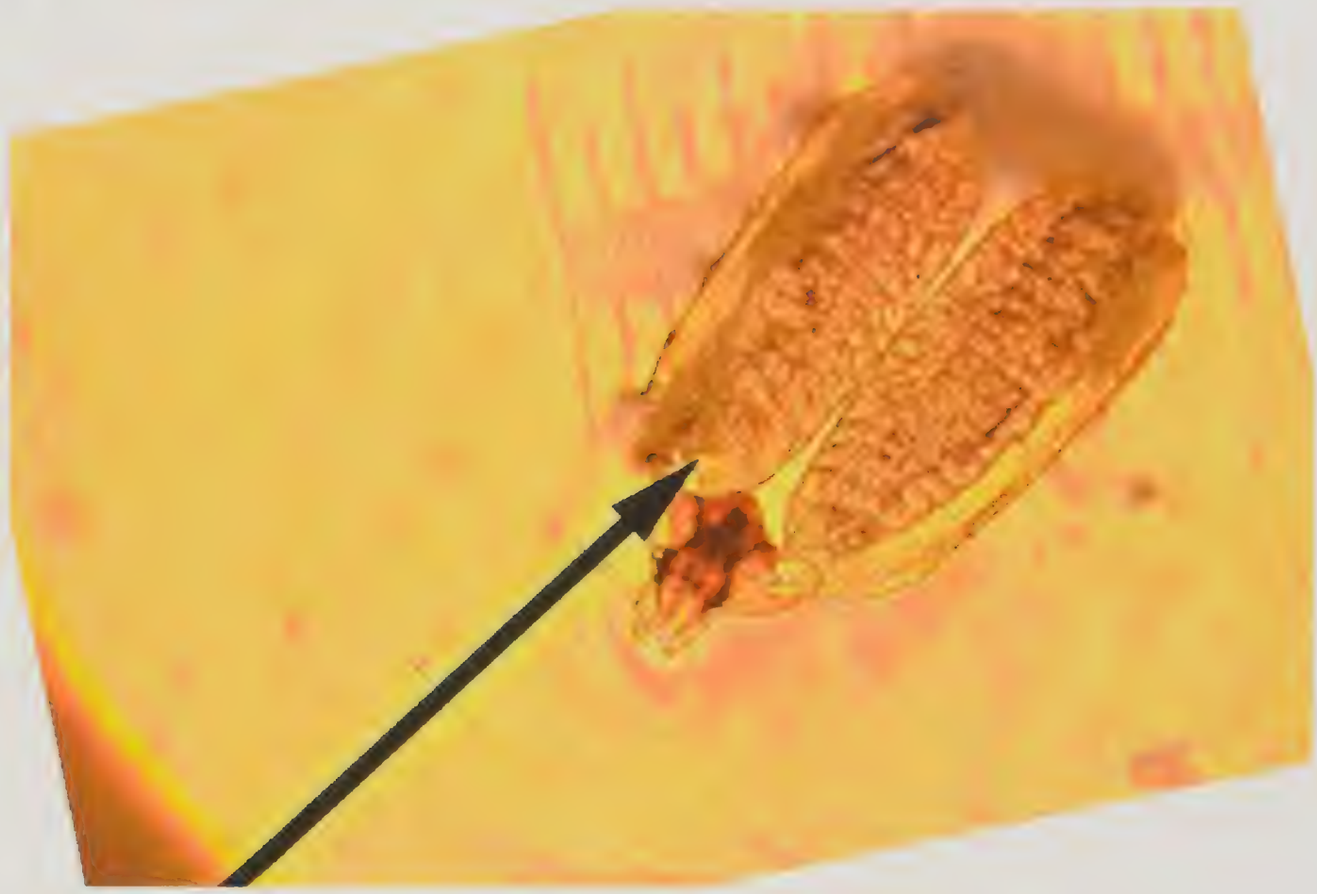


Bottom view of the corona enlarged ca. 9X. The lobes are channeled to near the central column which is slightly thickened and extended.

Apex – apex	0.37 cm
Widest	0.16 cm
Ret. – ret.	0.07 cm
Ret – center	0.06 cm
Aw. – aw.	0.14 cm
Aw. – center	0.12 cm.



Side view of a coronal scale enlarged ca. 22X. This shows the keel down the dorsal surface, the edges are rather sharp, outer apex thin, to the lower left the very deep scythe shaped edge of the anther wing (butter-yellow).



Pollinarium enlarged about 180X

Pollinium

length	0.51 mm
widest	0.20 mm

Retinaculum

length	0.12 mm
shoulder	0.12 mm
waist	0.05 mm
hip	0.09 mm
ext.	0.06 mm

Translator

length	0.12 mm
depth	0.02 mm

Caudicle

bulb diam.	0.05 mm

Ratios:	pol./width	2.6
	pol./ret.	4.3

HERBARIUM
14599
HOLOTYPE
PHILIPPINES UF 783 22 February 2010
APOCYNACEAE-ASCLEPIADOIDEAE
Hoya sp.
Luzon, Province of Isabela , Municipality of Maconacon, Brgy Reina Mercedes, along Dicatiyan River
Alt. 45 masl
Habitat: Vine collected on a tree on a river embankment along Dicatiyan river
Vine with mildly scented flowers
Photo taken
Collector Ulysses Ferreras
Holotype sheet reduced copy

UF 783	Leaf 1	Leaf 2
Leaf Length	6.5	8
Leaf Width	2.2	2.5
Petiole	0.7	1
Peduncle	3	
Stem Diameter	0.2	

*Measurement in centimeters
Leaf with 5 primary nerves.

Hoya santiagoi Kloppenburg & Siar

Hoya santiagoi Kloppenburg & Siar sp. nova, Typus 36315 (PNH) hic designatus, similis *Hoya monetteae* Green, Fraterna 17:2, 10-15, 2004 sed differt. Corolla similis sed parviorum diameter 1.6 cm vs. 2.00 cm. Folia multus parvis 4.5-6 cm x 1.5 – 2 cm vs. 20 cm x 10 cm et folia margine integram non revolubilem.

This new species is similar to the Palawan species *Hoya monetteae* Green especially in the coronal structure, the corolla is smaller and the leaves are entirely different, much smaller 4.5-6 x 1.5-2 vs. 20 x 10 cm and the leaf margins are entire not rolled under.

Collected by Manuel M. Santiago at Bimangoan Yard, 24 Feb. 1957, 20 m. altitude. A globose flower cluster +/- 24 flowers. Stems heavy 3 cm in diameter rooting, terete, minutely pubescent. Internodes 1-6 cm

Leaf blade: 4.5-6 cm x 1.5 – 2 cm, pinnate nervation glabrous, petiole ca. 0.5 cm curved, surface with minute pubescence. Ovate, base obtuse, apex acute.

Peduncle: 1-3 cm long, terete, fine pubescence expanded toward the rachis, purplish.

Rachis: bracteate.

Pedicel: equal in length, ca. 2.4 cm, terete, filiform, medium pubescent.

Calyx: linear to triangular 0.34 cm x 0.15 cm ciliate and pubescent more so than the pedicels, do not reach the corolla sinuses.

Corolla: outside surface at a lobe enlarged about 8X. Surface is glabrous outside but granulate.

Sinus – sinus	0.50 cm
Sinus – center	0.45 cm
Sinus – apex	0.55 cm
Apex – center	0.84 cm
Widest	0.52 cm

Color light pink with a purple center.

Bottom view of the corona enlarged about 16X. Lobes are channeled to near the enlarged central column, 0.20 cm long, opening 0.12 cm, all glabrous.

Top view of a flower enlarged about 8X, corolla inside is densely pubescent. Coronal lobes reach the corolla sinuses are keeled on dorsal and touch in the center. I made a notation that there are long anther sticking out the center. Outer apices appear emarginate.

Top view of a corona enlarged about 20X. Anthers here are visible. It appears the inner lobes are spatulate.

Apex – apex	0.45 cm
Widest	0.10 cm
width w/side lobes	0.19 cm
Aw. – aw.	0.23 cm

FLORA OF THE PHILIPPINES
36315
If the 2 umbels belong with these leaves it matches no present Philippine species Det Dale Kinnaburg
FLORA OF THE PHILIPPINES
Hoya
In Yard
Binangonan
Rizal Province
Feb. 24, 1957

WILL THE REAL HOYA VITELLINOIDES PLEASE STAND UP?

I had to laugh when Barry Yinger from Asiatica once told me that Hoya people are the most disputatious of all plant people he has ever seen. And, that is a fact when it comes to *Hoya vitelliniodes* for it is a running argument about what is and isn't the true one.

Of the plants that we have had in our collections the 2 that are so mixed up are H meredithii and H. vitellinoides. To add fuel to the fire, let's add a couple of more, and see if they might change the minds of some growers. One is an un-named H. sp. And the other is what I think is the true H. vitellinoides

A BIT OF BACKGROUND

Bakhuizen (the younger) named H. vitellinoides (which means like vitellina, from Greek) because it resembled H. vitellina, Blume. Maybe in growth but not the flower or its parts for the flower color is egg-yolk colored (vitellina = egg-yolk color, in Latin). The leaves of vitellina are usually about half the size of H vitellinoides but with the same substance.

H. vitellina Blume

Then, here is the original description of H. vitellinoides -

Hoya vitellinoides Bakhuizen f. 1950

Type Description:

In Blumea 6 (1950) 381. "Notes on the Flora of Java" R. C. Bakhuizen van den Brink **Hoya vitellinoides** Bakh f., Spec nov. Scandens; caulis glaber; folio oblongs basi obtuse breviter et acute acuminate in utraque pagina sparsissime brevissime pilosella crasse coriacea penninervia nervis lateralibus 4-6 in utraque pagina conspicuis percursa irregulariter transverse venulosa sine

(?) trichomatibus 14-16 cm longa, 7—7.5 cm lata, petiolo crasso 7.5- 10 mm longo. Inflorescentia mihi ignota; pedicellus tennis densiuscule pilosellus 2.5 cm longus; calycis laciniae anguste triangulates obtusiusculae ciliatae sparsissime puberulae 1 mm. longae; corolla, fere plane (?) lutea in sicco circa 8 mm diametiens; laciniae elliptico-oblongae abrupte acute acuminatae, oculis inarmatis intus fere glabrae, sub lente fortiusculo sparse munitae squamulis rotundis vel pilis stellatis minutia, 3.5 mm longae; coronae lobi angusti, ambitu plus minus triangulari-cultriformes, angulo externo sublinguiformes, apice anguste triangulari supra valide carinati, angulo inferno e basi lato late triangulari acute: coronae squamarum pars connata (gynostemium includens) multo quam duplo brevior parte libera anguli externi; pollinia oblanceolata apice oblique cuneata, translatore fere duplo longiora; caudicula nulla; folliculi ignoti.
Java Western part, Batavia, Mt. Tjipoetih, near Tjiampea, alt. 800 m: Bakhuizen van den Brink 4181 (L), type spec., fl. Sept.

Resembling somewhat *Hoya vitellina* Bl., but differing by the characters of the corona scales and the pollination apparatus.

Translation: Climbing; stalk glabrous; leaves oblong base shortly obtuse and acutely acuminate on both surfaces very sparsely and very shortly pilose thickly coriaceous, penninerved, lateral nerves 4 to 6 parts on both surfaces conspicuously transverse all over by irregular veins without (?) trichomes 14 to 16 cm long, 7 to 7.5 cm wide, petiole thick 7.5 to 10 mm long. Inflorescence in mine not seen; pedicels thin densely pilose 2.5 cm long; calyx lobes narrowly triangular somewhat obtuse ciliate very sparsely puberulous 1 mm long; corolla almost flat (?) yellow in the dry state about 8 mm in diameter; lobes elliptic-oblong abruptly acute acuminate, with the aid of lens, the inside, covered sparsely with minute scaly hairs or minute stellate hairs, 3.5 mm long; lobes of the corona narrow, more or less triangular-cultriform, external angle almost tongue-shaped, apexes narrowly triangular, above strongly keeled, interior angle at bases broadly triangular acute; scales of the corona fused (gynostegium included) more than double shorter part free at the external angle; pollinia oblanceolate apexes obliquely cuneate, translators almost twice longer; caudicle lacking; follicles not seen.

Other Literature:

In Flora of Java 2 (965) 269. C. A. Backer. (Key).
b. Corona-scales narrow, subtriangular-cultriform in outline, broadly triangular at the inner angle, from a wide base, acme, ligulate at the outer angle with a narrowly triangular top, and strongly keeled on the upper side; pollinia obovate-lanceolate, with an oblique subcuneate top, about twice the length of the translator; calyx-segments narrowly triangular, c. 2 mm long; corolla yellow(?); inside of segments thinly covered with minute, scale-like hairs. Leaves oblong, from an obtuse base, shortly acuminate when young very sparingly pubescent on both sides, afterwards subglabrous excl. on midrib and base, c. 16 cm by 7.5 cm; petiole c. 1 cm. Dimensions ?; IX; up to now only collected on Mt. Tjiputih W. of Bogor (W.); 800; forest .....**H. vitellinoides** Bakh. f.

Photo and microphotographs: Dale said: From flowers taken from the type sheet #4181 at (BO) Bogor Herbarium, Indonesia by Chris Burton and mailed to me in 1990. The sheet at Leiden (L) has not been located but there is this one in Bogor Herbarium. TG and DK photo, Bogor 1981. Burton states "the sheet was labeled *H. coriacea*, except for its long acuminate leaves looks much like H. meredithii" (it only has 6 flowers on the sheet).

Our Photo of the herbarium sheet we took at the Bogor, Indonesia. Herbarium. Named the Type of H. vitellinoides sheet though it is labeled *Hoya coriacea*.

Photograph of *H. vitellinoides* that I took at the New York Botanical Garden - a Mt. Kinabalu collection by the Clemenses.

Then, there is the collection that I, Torill, Eva-Karin, Dale, etc. made in Sabah in 1999 at a place that we called the "Chicken farm". We called it that for we had to cross through a yard that had a lot of chickens. It was growing on a dead tree by the nearby stream, on the road to Tambunan. The "Chicken farm" is in the Crocker range – the same range as and not over 50 miles from Mt Kinabalu (where the above specimen was found).

Today, 2011, the chicken farm, the dead tree and the hoya are gone although it is found in many areas around Mt. Kinabalu – e g, Poring Hot Springs, Ranau, etc.

H vitelliniodes from the "Chicken farm"

Leaf variations of "Chicken Farm"

H vitellinioides "Poring" general growth

H vitellinioides "Poring" umbel

H. meredithii Typical form

H. meredithii, Long Miau form

The Type *Hoya meredithi* was collected at Bau, Sarawak, and has distinctive large leaves, strong venation and yellow flowers. The thicker, heavier form was collected at Long Miau, Sabah – near Brunei border.

One Hoya faction considers H. meredithii to be the true H. vitellinoides – I don't and never have.

THE OTHER "VITELLINOIDES

HOYA SP.

Hoya skinneriana *Kloppenburg*

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